



TSHWANE INTEGRATED ENVIRONMENTAL POLICY

JANUARY 2005

**DEPARTMENT OF HOUSING, CITY PLANNING AND
ENVIRONMENTAL MANAGEMENT
ENVIRONMENTAL RESOURCE MANAGEMENT SECTION**

FOREWORD BY THE EXECUTIVE MAYOR

The City of Tshwane is blessed with a rich, diverse and dynamic natural resource base. However, as the capital city of South Africa, it is experiencing rapid urban growth, which directly results in immense pressure on the environment.

To comply with the growing needs of the Tshwane population, the City of Tshwane Metropolitan Municipality (CTMM) must ensure that all development within Tshwane is economically competitive and socially acceptable. It is also imperative that the CTMM recognise and effectively manage the environment within which social and economic development occurs in order to ensure true sustainable development.

In response to the above major challenge, the CTMM has developed the Tshwane Integrated Environmental Policy (TIEP) to ensure that the Tshwane environment is managed and utilised to the greatest benefit of all, while still ensuring that it is preserved for future generations to enjoy.

The adoption of the TIEP as an official CTMM policy shows the commitment of all CTMM decision-makers and officials to work continuously, in partnership with all the people of Tshwane, to ensure that the unique environment of Tshwane is conserved, protected and enhanced for current and future generations.

We, the CTMM, in partnership with the local community, pledge to commit ourselves to work tirelessly towards the successful implementation of the TIEP and to provide the necessary resources to do so.

*His Worship the Executive Mayor
Father Smangaliso Mkhathshwa*

**PLEDGE BY THE TOP MANAGEMENT AND MAYORAL COMMITTEE OF THE CITY OF
TSHWANE METROPOLITAN MUNICIPALITY
(To be signed by Top Management and Mayoral Committee)**

I, as a leader of local government in the City of Tshwane, hereby commit myself to the Tshwane Integrated Environmental Policy (TIEP) and will strive to:

- **Ensure that the TIEP is implemented and integrated into all activities, plans and programmes of local government;**
- **Supporting projects and programmes in accordance with the TIEP;**
- **Promote compliance to the TIEP by all stakeholders and role players;**
- **Allocate/source sufficient funding to ensure that all TIEP strategic goals are addressed**

Signed:

Name:

Designation:

Date:

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ABBREVIATIONS AND DEFINITION OF TERMS

Basic needs	The provision of fundamental goods and services required to ensure quality of life.
Best practicable environmental option	The option that provides the most benefits or results with the least damage to the environment as a whole at a cost acceptable to society in the long and short term.
Biodiversity	The variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. It includes diversity within species, between species and of ecosystems.
By-laws	Drafted by the local authority to implement policy goals.
Capacity building	The improvement of an organisation's or community's ability to perform its tasks effectively and confidently. It may include skills training, organisational development and financial resources.
Cooperative governance	The requirements of all relevant departments are taken into account when making a decision. It includes consulting with communities that may be affected by the proposed development and taking a decision based on inputs from all the relevant authorities.
CTMM	The City of Tshwane Metropolitan Municipality
Cultural resources	The physical elements of the built and natural environment that are integral to a sense of shared identity within a community.
Development	Actions by individuals, communities or government aimed at improving the quality of life and the fulfilment of human potential.

Dignified space	The inclusion of facilities such as open spaces, parks, schools and recreational and social amenities in planning processes to support viable residential areas.
Ecological footprint of the city	The bio-productive space used for producing the resources consumed in the city and absorbing the waste produced. This indicator is normally presented as per capita figure.
Ecosystem	A dynamic system where plant, animal and micro-organism communities and their non-living environment interacts as a functional unit.
Environment	<p>The surroundings that humans exist in, made up of –</p> <ul style="list-style-type: none">• the land, water and atmosphere of the earth;• micro-organism, plant and animal life;• any part or combination of the above and the interrelationships among and between them; and• the physical, chemical, aesthetic and cultural properties and conditions of the above that influence human health and wellbeing.
Environmental health	Comprises those aspects of human health, including the quality of life, that are determined by physical, chemical, biological, social and psychosocial factors in the environment. It also includes the theory and practice of ascertaining, correcting, controlling and preventing those factors in the environment that can potentially adversely affect the health of present and future generations.
Environmental justice	The process of ensuring that adverse environmental impacts are not distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged people.

Environmental Management Information System (EMIS)	A system that consolidates and manages the environmental information of an organisation in order to improve the accessibility and transfer of this information through the organisation, thereby improving decision-making.
Environmental Management System (EMS)	A system that includes structures, procedures and processes designed to implement a metropolitan environmental policy and to review and improve it on an ongoing basis.
Environmental principle	Principles listed in section 2 of the National Environmental Management Act, 1998 (Act 107 of 1998).
Erosion	The loss of soil through the action of water, wind, ice or other agents, including the subsidence of soil.
Green buildings	Applying best practice environmental goods and services in the construction, maintenance and operation of building infrastructure.
Habitats	The suitable living conditions of an organism or community of organisms.
Hazardous substances	Substances that may cause injury or ill health to or the death of human beings because of their toxic, corrosive, irritant, strongly sensitising or flammable nature or their ability to generate pressure in certain circumstances.
Health care services	<ul style="list-style-type: none">• Health care services, including reproductive health care and emergency medical treatment, contemplated in section 27 of the Constitution of the Republic of South Africa, 1996 (Act 108 of 1996).• Basic nutritional and health care services contemplated in section 28(1)(c) of the Constitution.• Medical treatment contemplated in section 35(2)(e) of the Constitution.• Municipal health services.

Incentives	Measures to encourage a particular attitude or action using various incentives such as a rebate, as rewards.
Integrated community development	The improvement of community structures that allows all people of a community equal opportunity to share the resources of the area.
Integrated Development Plan (IDP)	A plan compiled by local government to prioritise and coordinate development activities and investment, as required by legislation.
Infrastructure	Permanent physical structures such as roads, stormwater drains and power lines.
Invader and weed plant species	A plant that has been declared an invader plant or weed in terms of the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).
Local Agenda 21	The charter for sustainable development used at local level, arising out of the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil in June 1992.
Monitoring	An activity that ensures that the requirements stipulated in conditions of approval, a management plan or an environmental contract are met.
Municipal health services	<p>It includes –</p> <ul style="list-style-type: none">• water quality monitoring;• food control;• waste management;• health surveillance of premises;• surveillance and prevention of communicable diseases (excluding immunisations);• vector control;• environmental pollution control;• disposal of the dead; and• chemical safety, <p>It excludes port health, malaria control and control of hazardous substances.</p>

Non-renewable resources	Raw materials available in finite amounts, which can be depleted, either because they are not replaced by natural processes or because their rate of replacement is hundreds of millions to billions of years (eg copper and coal). These resources are extracted and used at a much faster rate than they are formed.
Open spaces	Open space areas with ecological, infrastructural (servitude) and recreational value.
Pollution	Any change in the environment caused by substances, radioactive or other waves, noise, odours, dust or heat emitted from any activity that has or will have an adverse effect on human health or wellbeing; on the composition, resilience and productivity of natural or managed ecosystems; or on materials useful to people.
Renewable resources	Raw materials that can be replaced by natural processes.
Risk Assessment Management System	The management system designed to assess and manage environmental risks.
Stakeholders	Individuals, organisations and institutions that have an interest in a particular project (eg community organisations, businesses, etc).
State of the Environment Report (SoER)	A globally accepted means of reporting that describes and analyses the current state of the environment in an area.
Tshwane	The municipal area that falls within the jurisdiction of the CTMM.

Waste minimisation

Reduction of the amount of waste produced through re-use, recycling and redesigning industrial processes.

1. INTRODUCTION

1.1 Why does Tshwane need an environmental policy?

The City of Tshwane Metropolitan Municipality (CTMM) incorporates a diversity of land uses, including residential (rural and urban), agricultural, natural open spaces and industrial and commercial areas within an area of about 2 200 km². The area is rich in natural, cultural and historical resources but is also faced with a number of problems, such as redressing past inequity and apartheid legacies, the need for housing, pollution by industries and communities, unemployment and poor service delivery. The growing needs of the increasing population in Tshwane have resulted in a growing demand for development. The CTMM recognises that, although development must be economically and socially acceptable, it is imperative that the development challenges facing Tshwane be addressed in an environmentally sustainable manner.

The City of Tshwane was the first municipality in South Africa to hold a local summit on sustainable development as a follow-up to the World Summit on Sustainable Development held on Johannesburg in 2002. The aim of the local Tshwane Summit was twofold:

- to raise the debate on sustainable development in the Tshwane area to another level; and
- to review the way forward in Tshwane relating to the outcomes of the Johannesburg World Summit on Sustainable Development (WSSD) with specific emphasis on Local Action 21.

Speakers from national, provincial and local government did presentations on WSSD outcomes relevant to their departments and put forward their strategies for implementation. The “medium-term strategy for the environment” (page 32 of this policy document) was developed as an outcome of the Tshwane summit.

The development of the TIEP is a further demonstration of the commitment of the people of Tshwane towards sustainable development and the protection of the environmental resources of the area.

1.2 How will the environmental policy assist the CTMM in environmental management?

The challenge for environmentally sustainable development within urban areas has led to the need for strategic planning processes to be implemented at local government level. An integrated environmental policy forms part of and contributes to this planning process. The diversity of land uses and need for development in Tshwane intensifies the need for an environmental policy for the entire metropolitan area that can address the needs of the community without unnecessarily compromising the environmental integrity of the area.

The basis for the development of an environmental policy is the fundamental right of every South African citizen to have a healthy environment, as stated in the Bill of Rights in the South African Constitution (section 24) and the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA). In response to this and the challenge of Local Agenda 21, the CTMM has embarked on a process to formulate the Tshwane Integrated Environmental Policy (TIEP).

The TIEP will form the foundation on which all departments within the CTMM can develop a medium-term environmental management strategy, which will include a State of the Environment Report (SoER) and the compilation of an Environmental Implementation Plan. The TIEP is not the responsibility of a single department, but rather serves to ensure that the environment is taken into consideration by all departments in the undertaking of their respective roles and responsibilities. It is not a stand-alone strategic planning document, but includes a number of initiatives to ensure incorporation of the environmental principle of sustainability (refer to section 2) within all sectors of Tshwane. Therefore this policy makes environmental issues and environmental sustainability an essential part of:

- all decision-making processes;
- the development of strategies and programmes for implementation in Tshwane;
- the development and planning of land use; and
- the management of resources and activities.

The TIEP will actively promote environmental responsibility by impacting in a practical manner on the following municipal operations and procedures undertaken by various departments within the CTMM:

- The Integrated Development Plan (IDP) process
- Individual IDP projects
- Proposed policies and by-laws
- Environmental Management Systems (EMS)
- Environmental audits
- Environmental risk management
- Developmental frameworks
- Metropolitan Spatial Development Framework
- Operational plans and procedures
- Training and orientation programmes
- Municipal strategies
- Open space management
- Resource management

2. DEFINITION OF KEY CONCEPTS

2.1 Environment

The word "environment" means different things to different people. Therefore it is necessary to define it. For the purpose of this policy, "environment" refers to the environment as defined in the NEMA, ie the surroundings in which humans exist and that is made up of –

- the land, water and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part or combination of the above and the interrelationships among and between them; and
- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

2.2 Sustainable development

The environment determines how much future sustainable growth and development is possible. In the past, people exploited natural resources with little regard for the long-term environmental impacts associated with their actions. In addition, the finite nature of non-renewable natural resources and the ecological cycles that sustain them were largely ignored. In recognising the finite nature of some natural resources available to society, it has become possible to introduce the conservation of these resources and the concept of sustainable development. Sustainable development involves using natural resources to meet present needs without compromising the ability of future generations to meet their own needs.

If the environment is ignored, growth and development can still improve people's quality of life. However, these improvements will only be short-term. Environmental damage or destruction will result in a lower quality of life over time, particularly in poorer areas. The environmental policy must therefore set a course that will direct the sustainable use of the available resources in Tshwane to avoid this.

2.3 Policy

A policy can be defined as a "purposive course of action" based on accepted societal values. The definition has two main components, namely:

- "purposive", which implies a point of departure (ie what is the concern or issue the policy is needed for?) and an outcome (ie what end result is desired?); and
- "course of action", which implies action (ie what needs to be done?) and actors (ie who needs to do it?).

An environmental policy is a set of guidelines and principles of action for managing and protecting the environment. The policy also sets a target level of environmental

responsibility and performance required against which all subsequent actions will be judged. This environmental policy will therefore –

- address environmental issues of concern for the specified area;
- be based on accepted societal values, and
- define a vision, goals, principles and objectives.

To achieve these objectives, the TIEP provides clear statements of intent and principles for the management of all aspects of the environment in a sustainable and integrated manner. These statements and principles are supported by clear targets and strategies.

3. RESPONSIBILITIES TOWARDS THE ENVIRONMENT

The CTMM has a major responsibility towards the environment in its area of jurisdiction and must ensure that the environment is managed in a sustainable manner that will not be harmful to the health and wellbeing of the residents (see Appendix A). This environmental policy has been developed to direct the CTMM's activities and programmes in terms of environmental considerations, thereby promoting sustainable development within Tshwane.

The CTMM's environmental responsibilities are underpinned by the following national legislation and policies:

- The Bill of Rights, contained within section 24 of the Constitution, which states that everyone has the right to an environment that is not harmful to his or her wellbeing and the right to an environment protected for current and future generations.
- Section 7 of the Constitution, which states that the objectives of local government include the promotion of a safe and healthy environment.
- Section 2 of the NEMA, which lays down principles that organs of state must take into account when making decisions affecting the environment. The underlying principle of NEMA is that development must be socially, environmentally and economically sustainable and that environmental management must address human needs. This section of the act sets out the considerations that must be taken into account to enable sustainable development, including the need to protect ecosystems, the "polluter-pays" principle, the precautionary principle, the preventative principle, waste minimisation and public participation.
- Section 23 of NEMA, which states that the general objective of environmental management is to identify, predict and evaluate actual and potential impacts on the environment, socioeconomic conditions, cultural heritage and their associated risks and consequences. This section also provides for the identification of alternative options for the mitigation of activities with a view to minimising negative impacts, maximising benefits and promoting compliance with the principles of environmental management.
- Section 28 of NEMA, which imposes duty of care, placing a positive obligation on any person or operation that has caused, is causing or is likely to cause damage to the

environment to take reasonable steps to prevent such damage. NEMA outlines the steps to be taken in this duty of care and who may be liable for breach of this duty.

- Section 32 of NEMA, which states that residents can take legal action against the local government to secure their environmental rights.
- Section 16(b) of NEMA, which compels municipalities to adhere to relevant environmental implementation and management plans and the principles (contained in Section 2 of the Act) when environmental policies are formulated or programmes, plans, IDPs or land development objectives are established.
- The Municipal Systems Act, 2000 (Act 32 of 2000), which recognises that it is the duty of the local government to strive to ensure that municipal services are provided to the community in a financially and environmentally sustainable manner and that they must promote a safe and healthy environment within the municipal area.
- The National Health Act, 2003 (Act 61 of 2003), which details responsibilities in terms of municipal health services, including environmental pollution control.
- The National Health Act, which states that every local authority is required to take all necessary, reasonable and practical measures to maintain a hygienic and clean district at all times and to prevent the occurrence of any nuisance or unhygienic condition.
- The 1998 White Paper on Local Government, which concludes that environmental sustainability is an integral component of an IDP.

(The relevant environmental legislation that the CTMM must consider when implementing this policy is summarised in the table in Appendix B.)

4. THE POLICY FORMULATION PROCESS

This policy is the result of an intensive consultation process with roleplayers representing a broad range of stakeholders within Tshwane. Stakeholders include elected councillors and officials of the CTMM, non-governmental organisations, community organisations, research and education institutes, business and industry, trade unions and the national and Gauteng Provincial Government. All stakeholders were involved in the development of the TIEP by participating in various workshops.

The purpose of the policy formulation process was to develop a TIEP that –

- is a statement of the CTMM's intent in terms of the environment through the formulation of a stakeholder-based vision;
- includes a commitment to environmental principles formulated through stakeholder participation and information contained in existing documentation (such as the SOeR);
- supports the development of tools to be used (internally and externally) to ensure that this policy is implemented and maintained;
- will initiate the formulation of new specific environmental policies and programmes and reformulate existing policies, strategies and activities (based on information obtained from the annual CTMM SoER and community needs analysis) in order to ensure compliance with the TIEP principles;

- will promote the establishment of an environmentally aware and educated community that will be able to manage and care for their environment in a sustainable manner; and
- will serve to inform the various departments of CTMM of their responsibilities to the environment, but will not attempt to instruct the different departments how their duties must be conducted.

5. TSHWANE INTEGRATED ENVIRONMENTAL POLICY

5.1 Environmental vision of the CTMM

An internationally acclaimed African capital city of excellence caring for its environment, demonstrating commitment and responsibility through innovation and collaboration.

This vision expands on the commitment to the environment contained in the broader mission, vision and value system of the CTMM, which was approved at a special Council meeting on 15 February 2001:

- **Vision**

To be an internationally acclaimed African capital city of excellence that empowers the community to prosper in a safe and healthy environment.

- **Mission**

To enhance the quality of life for all people in the City of Tshwane through a developmental system of local government and the rendering of efficient, effective and affordable services.

- **Value system**

- Community orientation: Provide and deliver sustainable services and activities for the whole community based on needs assessment.
- Transparency: Invite and encourage public sharing and democratic participation in the Council's activities.
- Commitment: Focus and concentrate on the Council's core activities in a consistent manner.
- Business orientation: Subscribe to and comply with the best business practice.
- Accountability: Report regularly to all stakeholders regarding the Council's performance.
- Integrity: Conduct the Council's business in a fair, responsible, flexible, equitable and honest manner.

- Non-racialism and non-sexism: Promote mutual respect and non-discriminatory policies and practices.

This vision, mission and value system will form the basis for the implementation of the TIEP. The CTMM has identified eight strategic focus areas that must be addressed in fulfilling this vision, mission and value system:

1. *The encouragement of economic growth and development in order to make the City of Tshwane's economy globally competitive and more focussed.*
2. *The establishment of new local governance structures to ensure democratic, responsible and equitable governance, as well as efficient and effective service delivery.*
3. *The management of physical development so as to compact and integrate the city, as well as to improve the quality and liveability of the urban and rural environments.*
4. *The ensuring of community wellbeing by addressing poverty and making essential services and facilities available, affordable and accessible.*
5. *The ensuring of a safe and secure environment by making community safety services available and accessible.*
6. *The promotion and strengthening of Tshwane's national status as the sole capital city of South Africa.*
7. *The building of Tshwane's international image and reputation as the African centre of excellence.*
8. *The caring for natural and cultural resources by preserving, utilising and enhancing them.*

5.2 The function of the policy

The CTMM has proposed the outputs that are considered important to implement the environmental policy. The policy should –

- give effect to the constitutional rights of the community;
- give effect to the CTMM's vision and its eight strategic focus areas, particularly the eighth one (*the caring for natural and cultural resources by preserving, utilising and enhancing them*);
- promote environmental legal compliance and environmental justice;
- ensure that all development in Tshwane incorporates the environmental principle of sustainable development;
- ensure that all departments within the CTMM take the environment into consideration when making decisions;
- reduce environmental liabilities;
- provide a framework and guidelines to ensure that all strategies, policies and programmes in Tshwane include environmental considerations;
- demonstrate the CTMM's commitment to sustainable development;

- provide guidance during the various phases of the IDP in terms of the promotion of environmental legislative compliance and the integration of environmental principles into projects and programmes;
- provide a framework for guiding and evaluating the IDP projects in terms of environmental considerations;
- provide clear direction regarding the conservation, use and enhancement of the environmental resources of Tshwane;
- facilitate setting targets and objectives for environmental management in Tshwane;
- ensure that the current needs of the community are met while natural resources are maintained for the benefit of future generations; and
- provide an institutional framework for policy implementation.

5.3 General policy principles

The TIEP is guided by the following principles. The implementation of these principles will be guided by national and provincial legislation and policies.

Sustainable development

Environmental management should seek to facilitate and enhance development that is socially, environmentally and economically sustainable. This includes using natural resources to meet present needs without compromising the ability of future generations to meet their own needs from these resources.

Environmental justice

Environmental management should seek to integrate social, economic and environmental justice with development.

Equity

Everyone should have fair access to environmental resources, benefits and services in order to meet their basic needs and ensure their wellbeing.

Public trust

The environment must be held in public trust so that the use of environmental resources benefits public interest and the environment is protected as all people's common heritage.

Participation and transparency

All interested and affected parties should participate in environmental decision-making and governance. Decisions must be open and transparent, and there must be access to information in accordance with the

relevant legislation.

Community wellbeing and empowerment

Community wellbeing and empowerment should be promoted through environmental education, raising environmental awareness, sharing knowledge and experience and other appropriate means.

Cooperative governance

Intergovernmental coordination must exist in the implementation of policies, legislation and actions relating to the environment. The CTMM must comply with and effectively enforce relevant environmental legislation.

Ecological integrity and minimisation of negative environmental impacts

Environmental management should avoid environmental impacts that threaten ecological integrity or, where environmental impacts are unavoidable, the impact thereof should be minimised through effective management systems and rehabilitation.

Reducing the ecological footprint of the city

Environmental management should aim to manage the bio-productive space used for producing the resources consumed within the city and absorbing the waste produced.

Realisation of the integrated nature of ecosystems

Environmental management should consider the environment from a holistic perspective, acknowledging the connection between different elements in the environment.

Integration of environmental considerations into decision-making

Environmental protection should constitute an integral part of all development processes.

Best practice environmental solutions and management

Best practice environmental solutions and management should be implemented, where practical in alliance with the principles of the World Summit on Sustainable Development, Local Agenda 21 and all international protocols to which South Africa is a signatory.

Continual improvement

Environmental quality and human health and wellbeing should continually be improved through the

effective implementation of environmental management systems and strategies. The CTMM's environmental performance should also show continual improvement.

Precautionary approach

Environmental management should apply a risk-averse and cautious approach, taking the limits of current knowledge regarding consequences of decisions and actions into account.

Internalisation of environmental costs

The "polluter-pays" principle should be implemented to ensure that those responsible for pollution and/or negative environmental impacts are responsible for remediation and the implementation of preventative measures. This requires efficient and effective law enforcement.

Consideration of full environmental costs

Management processes should consider the environmental cost of goods, services and processes throughout the lifecycle of the project/product.

Shared responsibility

All individuals and organisations in Tshwane have a shared responsibility towards the sustainable use of the environment and to the improvement of environmental quality and human health and wellbeing.

5.4 Overarching goals, objectives and policy statements

From the information obtained during the formulation of the policy, environmental issues within the policy that must be addressed were identified. Related issues were grouped together to formulate the following broader strategic issues:

- Environmental governance
- Spatial development planning
- Economic development
- Social development
- Environmental awareness and education
- Environmental resource management
- Environmental health management

Although these strategic issues are presented separately, there are considerable overlaps and links between them. Therefore they must be viewed as a whole rather than individually. The responsibilities to the environment extend across all departments within

the CTMM, therefore communication and collaboration between these departments through the implementation of cooperative governance is important. The figure below provides a roadmap of the TIEP.

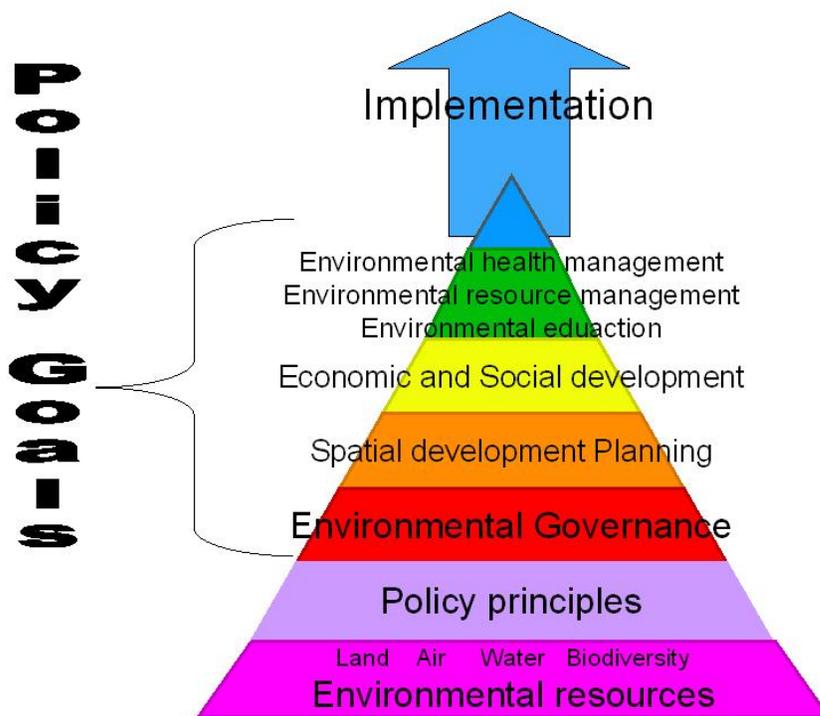
The TIEP roadmap aims to provide the reader with a birds-eye view of the contents of the TIEP.

The city's environmental efforts are guided by our natural resources, forming the basis of the pyramid. The policy goals rest on the policy principles, as explained in the first part of the document.

Since legislation guides most of the activities of organs of state, environmental governance is placed as the basis for the other goals, followed by economic and social development.

Aspects related directly to environmental interventions were clustered together at the top of the pyramid.

"Implementation" emphasises the fact that further actions must emanate from the TIEP in order to reach the stated objectives.



The following has been developed for each strategic issue:

- **Overarching goal**
- **Objectives** (the main objectives to achieve the goal for each strategic issue)
- **Policy statements** (recommendations of how each objective can be fulfilled)

The aim of the goals and objectives is to work towards the vision of the CTMM on the basis of the principles outlined above, and they are intended to guide the processes and programmes within the CTMM. These goals and objectives are based on information obtained from the Tshwane IDP, the Tshwane SoER, a review of all relevant environmental legislation and issues raised during stakeholder consultation. The policy statements for each objective have been numbered for ease of reference and are not reflected in any order of priority.

This policy provides a broad holistic framework for integrated environmental management within the CTMM, structured around these strategic issues, goals and objectives for ease of reference. The goals and objectives contained within this policy should be used as a guiding framework within which specific policies and strategies can be developed.

The goals and objectives serve to inform the various CTMM departments of the importance of including environmental issues and considerations in their current planning and developmental, maintenance and operational duties and responsibilities. The policy does not attempt to instruct departments on the methods to deliver their core responsibilities, but to introduce good environmental governance into these core responsibilities.

5.4.1 Environmental governance

Governance issues must be dealt with in terms of the requirements of the Constitution. In terms of this act, government is constituted as national, provincial and local spheres. Responsibilities in terms of governance and management of various environmental issues are stipulated in the relevant environmental legislation. The NEMA contains cooperative governance provisions and procedures for coordinating environmental functions exercised by the various spheres.

Integrated environmental management in Tshwane requires cooperative governance between the various spheres. This involves –

- the establishment of principles for decision-making on matters affecting the environment;
- the promotion of cooperative governance by institutions;
- the provision of certain aspects of administration; and
- the enforcement of environmental management legislation.

- **Overarching goal**

To create an effective, appropriately resourced and harmonised institutional framework able to facilitate the implementation of the TIEP.

- **Objective 1**

To build institutional capacity at all levels of the CTMM in order to ensure that the policy is effectively implemented. This objective will be achieved by –

- i) examining existing institutions, options, mechanisms, structures and procedures regarding their ability to implement the TIEP and using them to ensure effective TIEP implementation where applicable;
- ii) establishing and implementing appropriate new institutions, opinions, mechanisms, structures and procedures in phases where necessary, in order to ensure the effective implementation of the TIEP through effective working relationships for environmental management at all levels of the CTMM;
- iii) ensuring sufficient human and financial resources within all CTMM departments to develop institutions and procedures and building capacity to enable the implementation of the TIEP;
- iv) integrating and coordinating existing structures and procedures within the CTMM to enable the efficient use of limited resources for environmental management in Tshwane;
- v) promoting, developing and implementing strategies, guidelines and sectoral policies for the implementation of the TIEP in order to assist officials and councillors in fulfilling their mandate; and
- vi) developing and enforcing local by-laws to reflect and give substance to the environmental requirements of the TIEP objectives.

- **Objective 2**

To enable ongoing and incremental improvement in the management, protection and quality of the Tshwane environment. This objective will be achieved by –

- i) establishing mechanisms and procedures to ensure effective consultation and involvement of authorities, stakeholders and the public in environmental governance and decision-making processes;
- ii) investigating and implementing mechanisms to hold those responsible for environmental degradation legally liable (by means of fines, compensation claims or restitution and rehabilitation orders) through cooperation with all relevant national and provincial authorities;
- iii) investigating and implementing new remedies for communities suffering the effects of present and past environmental damage;
- iv) developing standards for all activities that may impact on the environment in Tshwane (eg EMSs, environmental impact assessments, monitoring and audit procedures and reporting); and
- v) reporting on environmental performance on a regular basis in an open and transparent manner through appropriate reporting methods that are in line with national systems.

- **Objective 3**

To develop and maintain mechanisms to gather, compile and provide access to appropriate environmental information in order to enable informed decision-making on issues affecting the environment. This objective will be achieved by –

- i) identifying and integrating available information and environmental studies by all sectors regarding the Tshwane environment;
- ii) undertaking appropriate research to strengthen the database of environmental information;
- iii) developing, implementing and managing an EMIS;
- iv) reporting on the state of the environment in Tshwane periodically through the compilation of SoERs;
- v) establishing a shared database for the City of Tshwane to draw on the diverse data sources within the CTMM in promoting integrated environmental information;
- vi) using geographical information systems to promote environmental risk analysis and management;
- vii) using information to compile relevant and effective environmental legislation, norms and standards;
- viii) developing appropriate environmental indicators to measure performance and facilitate environmental management, monitoring, reporting and decision-making; and
- ix) promoting access to timely and appropriate environmental information to all stakeholders.

- **Objective 4**

To ensure the monitoring and evaluation of the TIEP programmes and objectives. This objective will be achieved by –

- i) reviewing and improving the policy on a regular basis through consultation with relevant authorities and stakeholders in order to ensure that new legislative requirements are accommodated; and
- ii) monitoring and auditing the implementation of the TIEP in relation to relevant legislation and functions within the CTMM.

- **Objective 5**

To ensure corporate environmental responsibility. This objective will be achieved by –

- i) implementing an EMS for municipal operations;
- ii) implementing "triple bottom line" reporting for all CTMM departments;

- iii) reviewing performance periodically in terms of environmental duty of care for all top management of the CTMM;
- iv) ensuring environmental disclosure in terms of all activities of the CTMM;
- v) regular environmental auditing of all CTMM departments and activities;
- vi) incorporating Environmental Risk Management in CTMM activities;
- vii) subscribing to green technology and reducing reliance on non-renewable resources for activities and development in Tshwane;
- viii) implementing the best practicable environmental option for all activities and developments within Tshwane; and
- ix) investigating and implementing mechanisms for the minimisation of all types of waste in Tshwane.

5.4.2 Spatial development planning

Land is the most important resource available for development in Tshwane. The growing population and the increasing demand for development and associated infrastructure is intensifying the pressure for land to be made available for residential, agriculture, industrial and recreational uses. Appropriate planning of land-use zones to meet this demand can assist in achieving a quality urban environment that provides for environmental, social and economic needs. This requires –

- an appropriate balance between the demand for development and infrastructure and the demand for open spaces and natural resources; and
- for land to be allocated and managed appropriately.

- **Overarching goal**

To ensure the sustainability of Tshwane through the integration of environmental, social and economic principles in all spatial development planning processes.

- **Objective 1**

To integrate the goals of the TIEP into the development planning process of the CTMM (including the IDP, the Open Space Policy, the Metropolitan Spatial Development Plan, regional development plans, the City Development Strategy and the corporate business planning process). This objective will be achieved by –

- i) ensuring that integrated environmental management principles and methods (including environmental impact assessments) are considered in development planning and plans for the use of natural and cultural resources;
- ii) ensuring that environmental impact assessments for new developments with potential noise impacts include an appropriate assessment and mitigation measures for implementation;

- iii) developing management instruments and mechanisms for the integration of environmental considerations in the identification of areas for development;
- iv) ensuring that information regarding environmental priorities and indicators are integral to the annual development planning process;
- v) ensuring that the development planning process makes provision for the identification, evaluation and assessment of all environmental impacts associated with planned developments (including noise impacts, air quality impacts, visual impacts, etc) in accordance with national, provincial and local legislation;
- vi) communicating planned land uses as identified within the spatial planning programmes and strategies of the CTMM effectively to communities and industry; and
- vii) undertaking planning in Tshwane in a regional context (ie in the context of and in close cooperation with planning authorities of neighbouring metropolitan areas in order to facilitate integration of environmental management with these areas).

- **Objective 2**

To respond to the challenge posed by physical urban development by identifying associated environmental opportunities and constraints in consultation with authorities, stakeholders and the public. This objective will be achieved by –

- i) recognising the need to manage uncontrolled urban expansion and the resultant social, environmental and economic costs in Tshwane by working towards creating a more densified metropolitan area;
- ii) enhancing the quality of life and health of all Tshwane residents through proactively realising the development opportunities of the environmental resource base (including ecotourism, cultural tourism, urban agriculture, etc);
- iii) taking cultural and traditional aspects and activities into consideration in spatial development planning;
- iv) promoting maximised infill development and using existing infrastructure as far as possible;
- v) supporting the Inner City Strategy to regenerate the inner city of Tshwane;
- vi) avoiding developments that would have a significant negative impact on culturally or ecologically sensitive areas and habitats, conservation-worthy areas or on human health and wellbeing;
- vii) avoiding developments that would result in significant negative alterations to the existing historical, cultural and socio-economic fabric of communities;
- viii) integrating land-use and development planning to ensure that business activities that could pose an environmental health risk are appropriately located;
- ix) developing and enforcing by-laws that are in line with national legislation and policy; and
- x) enforcing relevant land-use and development planning legislation and regulations through appropriately educated resources within the CTMM.

- **Objective 3**

To contribute to the effective planning and management of a sustainable transport system for Tshwane. This objective will be achieved by –

- i) including environmental considerations in a sustainable transport policy;
- ii) adopting an integrated approach when planning a transportation infrastructure, taking environmental, social and economic factors into consideration;
- iii) ensuring that the principles and approaches of sustainable development are applied in the planning and development of infrastructure;
- iv) developing an integrated public transport system in parallel with planning for spatial integration of Tshwane;
- v) reducing the level of air and noise pollution associated with the current transport system by working towards an expanded, accessible, safe, more energy-efficient and less polluting system; and
- vi) investigating the promotion of incentives for commuters who use public transport.
- vii) incorporating bicycle routes where feasible and appropriate to the local context.

- **Objective 4**

To ensure that the planning and development of infrastructure, housing and service delivery in Tshwane takes environmental opportunities and constraints into account. This objective will be achieved by –

- i) improving the coordination between sectors responsible for infrastructure (eg roads, electricity, communication, sanitation systems and stormwater management);
- ii) promoting effective forward planning for the appropriate siting, development, licensing, management and decommissioning of wastewater treatment works in Tshwane;
- iii) striving to minimise the use of non-renewable resources and reducing consumption of water and energy through the promotion of appropriate alternative technologies that will reduce resource use, waste generation and pollution;
- iv) promoting urban greening;
- v) investigating and implementing green buildings and events greening initiatives, and investigating the promotion of incentives for the implementation of green buildings and events greening; and
- vi) promoting effective development planning to include appropriate and adequate stormwater management infrastructure for existing and planned developments.

- **Objective 5**

To ensure the management of open spaces, conservation areas and natural resources in order to promote a healthy sense of place. This will be achieved by –

- i) identifying current and future areas that should be included to support and maintain natural resources and habitats for plants and animals;
- ii) finalising and implementing the Metropolitan Open Space Framework currently being compiled for Tshwane;
- iii) recognising that an effective open space system in Tshwane is essential for the protection of biodiversity;
- iv) designing, expanding and maintaining safe open spaces to promote activities and using the open space network in recreational opportunities for Tshwane residents;
- v) developing and implementing management plans for the existing metropolitan open space system;
- vi) linking and integrating the metropolitan green open space system in order to aid in the preservation of species and the promotion of biodiversity;
- vii) integrating the open space system into land-use and development planning;
- viii) protecting existing open spaces; and
- ix) ensuring the appropriate management of open space systems and nature reserves in Tshwane and the link between these systems.

5.4.3 ECONOMIC DEVELOPMENT

The economy plays a crucial role in sustainable development. A growing economy provides employment and income for the area. The economic development of the city is important for social equity and environmental sustainability. Positive economic growth can enhance the quality of people's lives by funding goods and services, such as housing, electricity, water supply, sewage disposal, waste removal and education. Economic activity, wealth and poverty all have an impact on the environment and, therefore, must be considered in environmental management.

- **Overarching goal**

To ensure that environmental sustainability influences economic development in Tshwane and promotes global competitiveness, provides jobs, aids in reducing poverty and improves living and business environments.

- **Objective 1**

To give due care and consideration to human health and environmental impacts when planning economic activities. This will be achieved by –

- i) supporting the development and implementation of a local economic development policy for Tshwane that takes the environment into consideration in the context of national initiatives;
- ii) promoting economic activities and infrastructure that enhances the quality of the environment;

- iii) ensuring that the likely environmental impacts associated with new economic activities are considered in the planning stages;
- iv) implementing an investment strategy that requires environmental standards, health and safety issues to be addressed;
- v) encouraging self-regulation by industry and business over and above legal requirements;
- vi) providing incentives for business, industry and parastatals to improve their environmental performance, including green buildings and procurement;
- vii) considering the environment in the continuation and expansion of existing economic initiatives within the city;
- viii) developing and implementing a tourism development plan to ensure appropriate management of tourism resources (including cultural and heritage resources) and opportunities in Tshwane;
- ix) promoting tourism through the sustainable development of natural and cultural resources;
- x) implementing supply chain management according to suppliers that show environmental responsibility; and
- xi) developing and implementing a sustainable urban agriculture framework.

5.4.4 Social development

It is clear from historical research by and practical experience of the CTMM that the level of social development and civic responsibility has a significant impact on a community's ability to develop and make effective and sustainable use of its resources. Education plays a vital role in this development process (refer to 5.4.5).

- **Overarching goal**

To ensure social development by promoting social integration and civic responsibility in order to aid communities in the effective and sustainable use of environmental resources.

- **Objective 1**

To encourage the building of communities and civic responsibility in order to promote a safe and healthy environment. This objective will be achieved by –

- i) ensuring that all Tshwane residents are afforded equal access and opportunity to the available resources;
- ii) creating dignified space, taking the cultural, historic and aesthetic values of communities into account, thereby promoting a sense of place;
- iii) promoting environmentally responsible urban agriculture to promote food security;
- iv) supporting the development and implementation of an Integrated Poverty Reduction Programme thereby enabling the city to develop an effective and comprehensive strategy for poverty alleviation;

- v) supporting the CTMM's existing policy on HIV/Aids;
- vi) supporting the existing programmes and policies developed and implemented by the CTMM aimed towards building healthy communities;
- vii) supporting the integration of community initiatives (internal and external to the CTMM) in order to ensure effective and sustainable use of resources by communities;
- viii) supporting the maintenance of a Community Safety and Disaster Plan in order to address safety and disaster management needs, particularly in terms of the protection of environmental resources; and
- ix) establishing new and strengthening existing mechanisms and procedures to ensure effective consultation and involvement of communities in environmental governance and decision-making processes.

5.4.5 Environmental awareness and education

Education and public awareness is an integral part of sustainable development and an important part of a community's understanding of environmental impacts and how these relate to their actions. Lack of knowledge by community members can cause the degradation of the environment. The empowerment of local communities with regards to the environment not only enables them to understand what may be wrong and how they can rectify it, but it also enables understanding and appreciation, which in turn leads to a desire to conserve and protect the surrounding environment and resources.

- **Overarching goal**

To promote environmental education and awareness that enhances the understanding of environmental rights, responsibilities and the appreciation of the environment.

- **Objective 1**

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 councillors 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;
- vii) promoting the education of traditional healers regarding sustainable harvesting and cultivation practices of medicinal herbs;
- viii) educating communities and industries regarding the economic value of natural resources and urban systems, and on their role in ensuring sustained service delivery, the provision of basic needs and economic opportunities; and
- ix) promoting continued education initiatives in order to work towards a sustainable balance between population and available resources.

- **Objective 2**

To ensure that environmental training and education is culturally and gender sensitive and responsive to the needs of the target audience. This objective will be achieved by –

- i) identifying groups that require environmental education (eg authorities, the youth, the broader public, industry, ward committees, etc.) and developing appropriate environmental education programs for them;
- ii) ensuring that appropriate education tools, media and programmes are used in the implementation of educational programmes, taking the target audience into consideration; and
- iii) ensuring that the developed environmental education programmes encourage critical thinking, address values and commitments and enhance the ability to act with understanding (ie influence behaviour).

- **Objective 3**

To ensure that education and training initiatives are preceded by an effective needs analysis process and that program development takes life-long learning, adult education principles where applicable and outcomes-based education into consideration. This objective will be achieved by –

- i) aligning training with the National Qualification Framework (NQF) where feasible;
- ii) encouraging the development of environmental policies and implementing environmental education in all learning programmes in Tshwane (such as school and higher education curricula) in cooperation with the Department of Education and higher education organisations and in line with national initiatives;
- iii) including issues surrounding population development and environmental health in broader environmental education programmes; and
- iv) integrating environmental education into existing municipal education programmes where appropriate.

- **Objective 4**

To build partnerships in environmental education between local government and existing community environmental education organisations and networks. This objective will be achieved by –

- i) developing and implementing a capacity-building programme regarding environmental education for the CTMM;
- ii) investigating sources for finance and funding of environmental education and awareness initiatives;
- iii) coordinating, continuing and enhancing existing education initiatives and programmes in Tshwane (covering issues such as health, the environment, water, sanitation and waste);
- iv) continually being involved in the Local Environmental Education Forum to enhance activities in Tshwane related to environmental education and awareness;
- v) developing new and strengthening existing relationships between the various spheres of government to promote environmental education and coordination of environmental education efforts;
- vi) coordinating with non-governmental organisations to promote public education initiatives;
- vii) creating links with other environmental education organisations and programmes; and
- viii) cooperating with civil society organisations in the expansion of existing environmental education programmes to educate broader communities and industry regarding the environment and the need to lead sustainable lifestyles in support of Local Agenda 21.

- **Objective 5**

To encourage the active involvement of business and industry in environmental education and awareness programmes for employees, local communities and the broader public. This objective will be achieved by –

- i) developing joint environmental education and awareness programmes in cooperation with business, industry, community organisations and non-governmental organisations;
- ii) promoting the development of environmental capacity building for employees by business and industry;
- iii) promoting entrepreneurship in terms of environmental education and awareness programmes and providing support for these initiatives; and
- iv) encouraging larger businesses and industries to assist in environmental management and education.

5.4.6 Environmental resource management

As natural habitats are reduced as a result of the increased demand for development, the biodiversity and natural resources of Tshwane are threatened. Therefore the CTMM requires an integrated environmental strategy to ensure that development is undertaken in a manner that sustains biodiversity and natural resources in Tshwane.

- **Overarching goal**

To ensure the long-term sustainability of Tshwane's natural resources through the protection and management of renewable and non-renewable resources and biodiversity.

- **Objective 1**

To ensure integrated planning and management and the optimal use of renewable and non-renewable resources. This will be achieved by –

- i) identifying natural resources, sensitive natural environments and areas of rich biodiversity in Tshwane to promote the sustainable use and management thereof;
- ii) investigating improved control over the extraction of non-renewable resources through mining activities in cooperation with the Department of Minerals and Energy;
- iii) ensuring that appropriate erosion control systems are in place for existing and new developments in Tshwane to minimise the loss of topsoil and siltation of freshwater systems as a result of runoff;
- iv) ensuring that appropriate rehabilitation measures are implemented to minimise the impact of development;
- v) ensuring the sustainable use of agricultural land and resources in Tshwane;
- vi) promoting the sustainable harvesting and cultivation of herbs and other plants for traditional medicines; and
- vii) identifying and integrating existing programmes and initiatives in the management of natural resources, sensitive environments and biodiversity.

- **Objective 2**

To assign a financial cost to environmental resources, wherever possible, for cost accounting purposes. This will be achieved by –

- i) integrating environmental issues into metropolitan economic and resource planning;
- ii) including the cost of environmental resources (including the costs of using resources and producing goods) in determining the market value of products;

- iii) establishing fair pricing structures for basic subsistence facilities (basic resources) to ensure that all people can afford them;
- iv) investigating the promotion of "green procurement practices" and the implementation thereof;
- v) developing and maintaining an environmental accounting system to reflect the economic cost of the depletion of environmental resources in order to take proactive measures for their protection;
- vi) investigating cost-benefit analysis and risk assessment systems for addressing economic, social, environmental and developmental issues; and
- vii) investigating incentives for environmental investment.

- **Objective 3**

To enable an integrated energy planning approach in planning for and delivering energy services. This will be achieved by –

- i) finalising and implementing Tshwane's sustainable energy strategy (Sustainable Energy Tshwane) through an interdepartmental steering committee;
- ii) adopting activities that will create awareness to energy approaches and practices in municipal operations;
- iii) aligning and incorporating energy issues with Local Agenda 21, sustainable development and the IDP where possible;
- iv) diversifying the energy supply and increasing renewable and cleaner energy sources;
- v) discouraging the use of inefficient energy fuels and those characterised by high pollution levels;
- vi) reducing energy consumption in all municipal operations;
- vii) implementing "green procurement" policies based on energy efficiency;
- viii) promoting cooperation between government, business, labour, communities and other stakeholders in joint problem-solving and the determination of common goals and standards for sustainable energy use in Tshwane;
- ix) promoting access to safe and environmentally sound energy services for the poor; and
- x) investigating, supporting and promoting sustainable alternative, renewable, cleaner and safer energy sources.

- **Objective 4**

To conserve and manage the cultural resources of Tshwane. This will be achieved by –

- i) identifying areas of cultural and historical significance in Tshwane;
- ii) protecting areas used for cultural activities to enable continued and sustained use and encouraging and facilitating cultural development in Tshwane;

- iii) promoting cultural tourism initiatives by communities; and
- iv) ensuring that needs and values of affected communities are taken into consideration in assessing the impacts of development and activities on cultural resources in Tshwane.

- **Objective 5**

To promote the conservation of biodiversity and natural resources in Tshwane. This will be achieved by –

- i) developing and implementing a holistic and integrated biodiversity management plan and conservation strategy;
- ii) conserving the diversity of landscapes, ecosystems, habitats, biological communities, populations and species in Tshwane;
- iii) ensuring that appropriate programmes are implemented for the management and control of alien and invasive plant and animal species for existing and new developments in Tshwane in order to conserve natural vegetation and water resources;
- iv) promoting ecotourism initiatives by communities; and
- v) creating conditions and incentives to support the conservation and sustainable use of biodiversity.

- **Objective 6**

To improve the quality of the environment and human health by adopting the principle of pollution prevention planning. This will be achieved by –

- i) developing and implementing a policy for integrated pollution management and prevention by all sectors in Tshwane;
- ii) assigning clear responsibilities for pollution management practices in Tshwane;
- iii) considering how discharge of pollutants can be minimised or eliminated;
- iv) cooperating with national and provincial government in encouraging industry and other producers to work towards eliminating production and transport of hazardous waste in accordance with the principles of the national Waste Management Strategy;
- v) implementing pollution monitoring programmes for small, medium and large businesses, industrial operations and parastatals;
- vi) encouraging self-regulation by industry and business over and above the legal requirements;
- vii) providing incentives for business, industry and parastatals to improve their environmental performance by reducing pollution and the demand for water and energy;
- viii) providing support in the establishment of economically efficient pollution prevention initiatives in Tshwane;

- ix) implementing the "polluter-pays" principle for all forms of pollution in Tshwane; and
- x) conducting a participative planning process to identify an appropriate strategy for managing hazardous waste in Tshwane.

- **Objective 7**

To manage water resources in an integrated manner in order to ensure that the quantity, quality and reliability of the water required to meet basic human needs, maintain ecological integrity and economic activity is guaranteed as a right and set aside as a reserve. This will be achieved by –

- i) Developing and implementing a water resource management policy for Tshwane, including all water resource aspects, in consultation with all relevant authorities and stakeholders;
- ii) implementing an integrated catchment planning and management strategy in cooperation with the Department of Water Affairs and Forestry;
- iii) supporting the establishment of relevant catchment management agencies in cooperation with the Department of Water Affairs and Forestry for catchments in and those supplying Tshwane with fresh water;
- iv) planning and managing water quality and quantity to achieve the desired future state for each freshwater system;
- v) identifying and controlling pollution sources (point sources and diffuse sources) that impact negatively on freshwater systems;
- vi) investigating and implementing appropriate mechanisms to improve the quality of urban runoff in existing and planned developments;
- vii) managing and protecting riparian vegetation, wetlands, floodplains and watercourses;
- viii) managing and protecting groundwater resources in Tshwane;
- ix) assigning clear responsibilities for water resource and pollution management practices in Tshwane;
- x) coordinating and integrating efforts from various authorities in the control and management of water resources in Tshwane;
- xi) investigating and implementing mechanisms to use water more efficiently and conserve water resources;
- xii) providing appropriate and adequate sanitation for all housing developments in Tshwane to reduce water resource pollution and improve human health and water quality;
- xiii) promoting effective forward planning for the appropriate siting, development, licensing, management and decommissioning of wastewater treatment works in Tshwane;
- xiv) promoting effective development planning to include environmentally appropriate and adequate stormwater management infrastructures within existing and planned developments;

- xv) cooperating with industries, labour, communities, national and provincial authorities and other stakeholders in improving effluent quality where necessary and in minimising effluent by treating them at the source; and
- xvi) determining and reviewing the quality standards for liquid effluent discharged to freshwater systems in cooperation with the national Department of Water Affairs and Forestry.

5.4.7 Environmental health management

All environmental factors impact on human health and wellbeing. Physical health is dependent on many environmental factors, including people's living conditions and the services provided to them (such as housing, electricity, water, sanitation and waste removal). The Tshwane environment is currently impacted by various pollution sources and large quantities of liquid and solid hazardous and non-hazardous waste. This pollution impacts on the water, land and air. The appropriate management and prevention of this pollution and the disposal of waste in accordance with the national Waste Management Strategy requirements is essential to maintaining a healthy environment.

- **Overarching Goal:**

To promote an environment that is not detrimental to human health and wellbeing through –

- effective environmental health management;
- the implementation of an integrated waste management and minimisation strategy at all levels within Tshwane; and
- the establishment of an integrated system of pollution minimisation, management and prevention.

- **Objective 1**

To continually provide better environmental health services in Tshwane and enabling emergency services to respond appropriately and effectively to environmental health hazards and environmental emergencies, thereby creating a healthy environment for all Tshwane residents. This objective will be achieved by –

- i) ensuring that environmentally responsible and adequate, affordable services and infrastructure accompany housing developments;
- ii) ensuring that a minimum standard of environmental health care services is available equitably throughout Tshwane;
- iii) identifying and managing potential environmental health hazards (eg hazardous spills, cholera outbreaks, fires, pests such as rats and mosquitoes, etc);
- iv) relocating informal settlements from high risk areas (such as areas underlain by dolomite) or environmentally sensitive areas (such as wetlands and floodplains) and

- the preventing their resettlement in these areas through the enforcement of appropriate legislation and policies;
- v) coordinating and integrating efforts from various authorities and other organisations (such as businesses and education centres) in the control and management of all potential environmental health hazards in Tshwane;
 - vi) encouraging business and industry to implement pollution monitoring programmes to determine and effectively address any impacts on occupational and environmental health;
 - vii) developing and facilitating integrated efforts between the CTMM and private sector to provide adequate health services and protect the informal sector (eg scavengers on landfill sites);
 - viii) enhancing the working conditions in Tshwane to improve human health and safety;
 - ix) developing appropriate procedures for environmental emergencies;
 - x) ensuring that adequate research and studies are undertaken with regards to environmental health threats in Tshwane (eg respiratory illnesses, tuberculosis, etc); and
 - xi) enforcing relevant environmental legislation and regulations through appropriately capacitated human resources within the CTMM in order to minimise environmental health hazards and environmental emergencies.

- **Objective 2**

To manage air quality (all aspects as defined in the relevant legislation) in Tshwane in terms of the requirements of the relevant legislation in order to improve it in areas with poor quality and maintain it in areas with good quality. This objective will be achieved by –

- i) implementing the Air Quality Management Plan to ensure a holistic air quality management approach;
- ii) assigning clear responsibilities for air quality management in Tshwane;
- iii) identifying and monitoring pollution sources that impact negatively on air quality;
- iv) determining which current air emissions in Tshwane must be reduced and the extent of the required reduction in consultation with all relevant authorities and stakeholders;
- v) clarifying the respective roles within local government with regards to air quality management and monitoring;
- vi) developing and implementing a system to manage air emissions in Tshwane on a sustainable basis, including addressing service delivery (such as electricity) to rural areas;
- vii) establishing a framework for compliance to national and international policies, legislation, norms and standards;
- viii) determining the resources required to execute air quality management;
- ix) ensuring that air quality management forms part of the integrated EMIS;
- x) developing and implementing air quality management programmes and projects;

- xi) developing a communication strategy for air quality management to ensure transparency and involvement of stakeholders and the public;
- xii) enforcing relevant air quality legislation and regulations;
- xiii) undertaking air quality management in Tshwane in the context of and in close cooperation with authorities in neighbouring metropolitan areas in order to facilitate integration of environmental management with these areas;
- xiv) implementing the noise policy and noise guidelines in consultation with all relevant authorities and stakeholders; and
- xv) doing appropriate land-use and development planning such that noise producing activities are planned, designed and managed to minimise noise pollution in noise sensitive areas.

- **Objective 3**

To improve the effectiveness of waste management activities for liquid, solid, general and hazardous waste in Tshwane in order to improve the quality of the environment and human health. This objective will be achieved by –

- i) supporting the development, implementation and periodic review of an Integrated Waste Management Strategy for Tshwane in consultation with all relevant stakeholders;
- ii) implementing the Waste Management Action Plan emanating from the Integrated Waste Management Strategy that the CTMM has developed in order to address short and long-term issues such as waste backlog, the implementation of new waste management structures, diversification of waste service delivery, the training of personnel in terms of waste management and optimised billing and budget management;
- iii) coordinating and integrating efforts of various authorities in controlling and managing all waste in Tshwane;
- iv) assigning clear responsibilities for waste management practices in Tshwane;
- v) ensuring cooperation between government, business, labour, communities and other stakeholders in joint problem-solving and the determination of common goals and standards for waste management and minimisation in Tshwane;
- vi) doing effective forward planning for the appropriate siting, development, licensing, management, upgrading (where necessary) and decommissioning of landfill sites, medical waste facilities and waste transfer stations in Tshwane;
- vii) cooperating with national and provincial government to ensure that sufficient facilities are provided for the treatment of hazardous waste and substances on site, where possible, and the safe and effective disposal thereof at an appropriate waste disposal site;
- viii) implementing effective management programmes for effluent from landfill sites and wastewater treatment works;
- ix) investigating measures to promote and support the separation of waste at the source;

- x) investigating the centralisation of waste disposal facilities for building rubble at a minimal charge, which could then be used for other purposes (such as road construction);
- xi) investigating alternative technologies, including cleaner production technologies for waste management;
- xii) preventing illegal dumping and littering through education, the implementation of recycling initiatives, the strict enforcement of regulations and by-laws and appropriate land-use planning for waste disposal purposes;
- xiii) effectively managing organic waste to minimise its health risk to Tshwane residents;
- xiv) regulating salvaging operations from illegal dumping areas and landfill sites and protecting the salvagers (eg through adequate education regarding health risks, etc); and
- xv) ensuring that environmental impact assessments for new developments include an assessment of potential waste streams and recommendations for the management of these waste streams.

- **Objective 4**

To improve the quality of the environment and human health by minimising the amount of liquid and solid hazardous and non-hazardous waste produced by human activities in Tshwane. This objective will be achieved by –

- i) initiating projects that encourage communities to reduce waste streams through waste minimisation, recycling and re-use;
- ii) setting targets to minimise the amount of waste generated at the source;
- iii) encouraging industry to reduce waste streams by reducing waste at the source, recycling, re-use and the redesign of processes and products where possible;
- iv) investigating the promotion of incentives for waste minimisation initiatives implemented by communities and/or industry;
- v) continuing with existing waste management and minimisation initiatives and cleaning campaigns in Tshwane (such as the national Cleanest City competition, the Inner City Clean Zone initiative, city cleansing and waste management education strategies to create community awareness and consciousness about sustainable waste management and the Tshwane Glass Recycling project) and developing and implementing new initiatives where required.
- vi) providing support for establishing economically efficient waste re-use and recycling initiatives throughout the city to service domestic, commercial and industrial producers of waste; and
- vii) supporting the implementation of initiatives for waste reduction, recycling and re-use at source, including the use of cleaner technologies and the provision of controlled access to landfill sites for salvagers.

6. THE WAY FORWARD FOR THE TSHWANE INTEGRATED ENVIRONMENTAL POLICY

The CTMM's medium term environmental strategy is reflected in the diagram on page 32.

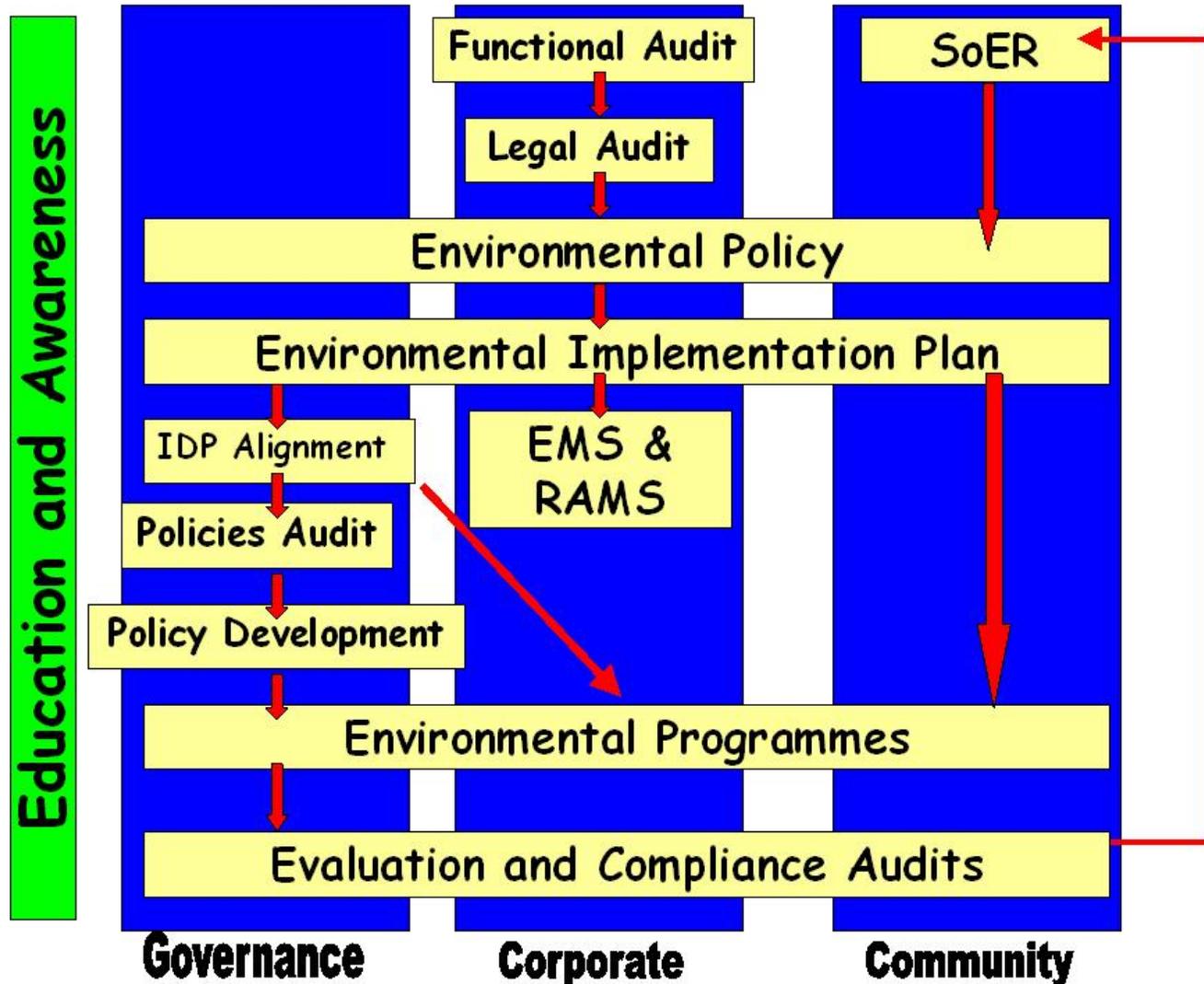
The strategy has three intervention points – that is across the governance or political domain of local government, the corporate or institutional domain of the municipality itself and the community domain.

Explanation of the strategy:

- The State of the Environment Report (SoER) will be utilised to ensure adequate analysis of the CTMM environment. The SoER consists of a set of indicators reflecting economic, social and environmental spheres of sustainable development. The SoER will guide decision-making and assist with the measuring of progress. It is spatially (GIS) based.
- The Functional Audit will identify key environmental impacts of the different municipal departments and will focus on the extent of policy and legislation development, business planning, development planning initiatives, infrastructure planning, facility and project construction, and facility and project implementation and maintenance.
- A Legal Audit of municipal activities will assist with the identification of areas not compliant to legal requirements.
- An Environmental Strategy will be the roadmap in order to implement the policy, and to correct findings of the legal audit.
- The Environmental Implementation Plan will be a set of objectives and targets related to the strategy and the findings of the functional audit and legal audit. This will include an overview of the key environmental impacts of departments coupled to objectives and targets related to the management of key impacts and Local Action 21 initiatives. Departments have to quantify targets and objectives in terms of the "triple bottom line" (economic, social and environmental aspects).
- The Integrated Development Plan of the municipality has to be aligned to the policy and environmental implementation plan.
- Generic Environmental Management Plans (EMPs) will be developed to guide infrastructure projects during construction and implementation.
- Environmental Management Systems will assist with greater corporate environmental responsibility during normal operations and service delivery.
- Audits will be executed regularly to monitor compliance to legislation, the environmental policy and EMPs and to correct deviations.
- Environmental Education and Awareness will be an integral part of all activities.
- Programmes will be developed and implemented originating from the Environmental Implementation Plan and Environmental Strategy.
- Evaluation will complete the feedback loop via the SoER

The environmental policy is one of the initial steps of this strategy. The following describe some of the key features that will characterise the CTMM's approach to implementing the TIEP:

- Implementation of the TIEP within various sectors, including government (the "Governance" tier in the figure), business and industry (the "Corporate" tier) and communities (the "Community" tier) will be ensured by the development of an environmental implementation plan in accordance with the requirements of chapter 3 of NEMA.
- The TIEP will provide a framework for the various departments of the CTMM to realign existing strategies, plans and policies and to develop new strategies, plans and policies to ensure compliance and implementation of TIEP goals, objectives and policy statements. Each CTMM department will be responsible to appropriately budget for the funding required to meet the TIEP goals and objectives and to implement the detailed environmental programmes applicable to their functions.
- Following the approval of the TIEP, clear actions, appropriate environmental tools, roles and responsibilities and timeframes will be identified and implemented for each CTMM department in order to ensure successful implementation of each goal and objective of the TIEP. The CTMM's IDP has been identified as a valuable tool through which the TIEP will be implemented in the CTMM. Detailed environmental programmes will be developed to address particular environmental issues identified during the TIEP formulation process.
- Education and awareness is vital throughout the implementation of the various levels of environmental management for the CTTM to ensure the success of this process.
- Progress, implementation and integration of the TIEP must also be monitored and evaluated. The CTMM SoER and EMIS will enable these processes. Since the TIEP should remain a document capable of adapting to the constantly changing environment of the CTMM, it is critical that it is constantly audited and revised for relevance, accuracy and practicality.



Appendix A: Constitutional Responsibilities to the Environment at all Levels of Government

SPERES OF GOVERNMENT	RELEVANT LEGISLATION	RESPONSIBILITIES
National, provincial and local government	Section 41 in Chapter 3 of the Constitution	<p>All spheres of government and all organs of state within each sphere must –</p> <ul style="list-style-type: none"> • secure the wellbeing of the people of the Republic; • be loyal to the Constitution, the Republic and its people; • respect the constitutional status, institutions, powers and functions of government in the other spheres; • not assume any power or function except those conferred on it in terms of the Constitution; • exercise its powers and perform its functions in a manner that does not encroach on the geographical, functional or institutional integrity of government in another sphere; and • cooperate with other spheres of government in mutual trust and good faith.
	Section 43 of the Constitution	<ul style="list-style-type: none"> • The legislative authority of the national sphere of government vests in Parliament; • the legislative authority of the provincial sphere vests in the provincial legislatures; and • the legislative authority of the local sphere vests in the municipal councils.
National government	Section 44 of the Constitution	<p>The Constitution confers on the National Assembly the power to –</p> <ul style="list-style-type: none"> • amend the Constitution; • pass legislation with regard to any matter, excluding a matter within the functional area listed in Schedule 4; • assign any of its powers, excluding the power to amend the Constitution, to any legislative body in another sphere of government; • intervene in the executive affairs of a province where the province cannot or does not fulfil an obligation imposed in terms of legislation or in terms of the Constitution (section 100 of the Constitution); and • issue a directive to the provincial executive requiring it to take stated steps to meet its obligations within a stated time or it may assume responsibility for that obligation where such assumption is necessary to maintain essential national standards or meeting established minimum standards for the rendering of a service, maintaining economic unity, maintaining national security or preventing the province from taking unreasonable action that is prejudicial to the rights and interests of another province or the country as a whole.

<p>National and provincial government</p>	<p>Schedule 4 of the Constitution</p>	<p>National and provincial government have concurrent legislative competences over –</p> <ul style="list-style-type: none"> • air pollution; • municipal health services; • stormwater management systems in built-up areas; • water and sanitation services; • water supply systems; and • domestic wastewater and sewage disposal systems. <p>National and provincial government have concurrent rights to legislate on the powers and functions mentioned above, and the executive authority to monitor the performance of municipalities in respect of these powers and functions.</p> <p>In the event of a conflict between national and provincial legislation falling within a functional area set out in Schedule 4 of the Constitution, national legislation that applies to the republic as a whole will prevail if –</p> <ul style="list-style-type: none"> • it deals with a matter that cannot be regulated effectively by provincial legislation; • it deals with a matter that, to be dealt with effectively, requires uniformity across the nation; and • it provides that uniformity by establishing norms and standards; frameworks or national policies or it is necessary for, amongst other things, the protection of the environment.
	<p>Section 154 of the Constitution</p>	<ul style="list-style-type: none"> • National and provincial governments must support and strengthen the capacity of municipalities to manage their own affairs, exercise their powers and perform their functions. • National or provincial legislation that affects the status, institutions powers or functions of local government must be published for public comment before being introduced in such a manner that allows organised local government municipalities and other interested persons an opportunity to make representations with regard to the draft legislation. • National and provincial governments must assign to a municipality the administration of any matter listed in Part A of Schedule 4 or Part A of Schedule 5 that necessarily relates to local government if that matter would be most effectively administered locally and the municipality has the capacity to administer it.

<p>National and provincial government</p>	<p>Chapter 7, Section 156 and Part A of Schedule 4 of the Constitution</p>	<p>National and provincial government has concurrent legislative competence over the following environmental and related functional areas:</p> <ul style="list-style-type: none"> • Administration of indigenous forests • Agriculture • Airports other than international and national airports • Animal control and diseases • Casinos, racing, gambling and wagering, excluding lotteries and sports pools • Consumer protection • Cultural matters • Disaster management • Environment • Health services • Housing • Industrial promotion • Nature conservation, excluding national parks, national botanical gardens and marine resources • Pollution control • Public transport • Public works, only in respect of the needs of provincial government departments in the discharge of their responsibilities to administer functions specifically assigned to them in terms of the Constitution or any other law • Regional planning and development • Road traffic regulation • Soil conservation • Tourism and trade • Urban and rural development
<p>Provincial government</p>	<p>Section 104 of the Constitution</p>	<p>The Provincial Legislatures have the power to –</p> <ul style="list-style-type: none"> • pass a constitution for the province and to amend that constitution; • pass legislation for the province with regard to any matter within a functional area listed in Schedule 4 or Schedule 5, any matter outside those functional areas that is expressly assigned to the province by national legislation or any matter for which the provisions of the Constitution envisages the enactment of provincial legislation; • assign any of its legislative powers to a municipal council in the province; and • establish minimum standards required for the rendering of services.

Provincial government	Section 114 of the Constitution	<ul style="list-style-type: none"> • A provincial legislature must provide for mechanisms to ensure that all provincial executive organs of state in the province are accountable to it and to maintain oversight of the exercise of provincial executive authority in the province and any provincial organ of state. • When a municipality cannot or does not fulfil an executive obligation in terms of legislation, the relevant provincial executive may intervene by taking any appropriate steps to ensure fulfilment of that obligation (Section 139 of the Constitution). • It may issue a directive to the municipal council describing the extent of the failure to fulfil its obligations and any the steps to rectify.
	Chapter 7, Section 156 and Part A of Schedule 5	<p>A provincial government has executive authority in respect of the following environmental and related functional areas:</p> <ul style="list-style-type: none"> • Abattoirs • Ambulance services • Provincial planning • Provincial cultural matters • Provincial recreation and amenities • Provincial roads and traffic • Veterinary services, excluding regulation of the profession
Local government (Municipalities)	Chapter 7 of the Constitution	<p>A municipality has executive authority in respect of and the right to administer the local government matters listed in Part B of Schedules 4 and 5 of the Constitution or any matter assigned to it by national or provincial legislation.</p> <p>A municipality has the right to govern, on its own initiative, the local government affairs of its community, subject to national and provincial legislation.</p> <p>In respect of environmental and related issues the objects of local government are to –</p> <ul style="list-style-type: none"> • 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.
	Section 153 of the Constitution	A municipality must structure and manage its administration and budgeting and planning processes to give priority to the basic needs of the community and participate in national and provincial development programmes.
	Section 156 and 162 of the Constitution	A by-law that conflicts with national or provincial legislation is invalid (section 156(3)). A municipal by-law may be enforced only after it has been published in the official gazette of the relevant province (section 162).

<p>Local government (Municipalities)</p>	<p>Chapter 7, Section 156 and Part B of Schedule 4 of the Constitution</p>	<p>A municipality has executive authority in respect of, and has the right to administer the local government matters listed in Part B of Schedule 4, including –</p> <ul style="list-style-type: none"> • air pollution; • building regulations; • child care facilities; • electricity and gas reticulation; • firefighting services; • local tourism; • municipal airports; • municipal planning; • municipal health services; • municipal public transport; • municipal public works (only in respect of the needs of municipalities in the discharge of their responsibilities to administer functions specifically assigned to them under this Constitution or any other law); • pontoons, ferries, jetties, piers and harbours, excluding the regulation of international and national shipping and matters related thereto; • stormwater management systems in built-up areas; • trading regulations; and • water and sanitation services (limited to potable water supply systems and domestic wastewater and sewage disposal systems). <p>A municipality has executive authority in respect of, and has the right to administer the local government matters listed in Part B of Schedule 5, including –</p> <ul style="list-style-type: none"> • beaches and amusement facilities; • billboards and the display of advertisements in public places; • cemeteries, funeral parlours and crematoria; • cleansing; • control of public nuisances; • control of undertakings that sell liquor to the public; • facilities for the accommodation, care and burial of animals; • fencing and fences; • licensing of dogs; • licensing and control of undertakings that sell food to the public; • street trading, street lighting, traffic and parking; • markets; • municipal abattoirs; • municipal parks and recreational facilities; • municipal roads; • noise pollution; • pounds; • public places; and • refuse removal, refuse dumps and solid waste disposal.
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Appendix B: Legislation relevant to environmental protection

Table B1: National legislation relevant to environmental protection

LEGISLATION	APPLICABILITY
Advertising on Roads and Ribbon Development Act, 1940 (Act 21 of 1940)	Prohibits the display of any advertisement that is visible from a public road without the permission of the controlling authority concerned.
Agricultural Pests Act, 1983 (Act 36 of 1983)	Prevents agricultural pests.
Animal Health Act, 2002 (Act 7 of 2002)	Regulates animal health.
Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965)	Control and manages air pollution.
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)	Controls and regulates the conservation of agriculture.
Constitution of the Republic of South Africa, 1996 (Act 108 of 1996)	Introduces a constitutional framework for municipalities in South Africa.
Development Facilitation Act, 1995 (Act 67 of 1995)	Provides for development and planning.
Electricity Act, 1987 (Act 41 of 1987)	Regulates and controls energy supply in South Africa.
Environment Conservation Act, 1989 (Act 73 of 1989)	Provides for the effective protection, control and use of the environment.
Hazardous Substances Act, 1973 (Act 15 of 1973)	Controls substances that may cause injury or ill health to or death of human beings by reason of their toxic nature.
Local Government: Municipal Demarcation Act, 1998 (Act 27 of 1998)	Establishes boundaries for local government purposes.
Local Government: Municipal Finance Act?	
Local Government: Municipal Structures Act, 1998 (Act 117 of 1998)	Provides for the structuring of local government institutions.
Local Government: Municipal Systems Act, 2000 (Act 32 of 2000)	Establishes core principles, processes, and mechanisms relating to local government.
Local Government Transition Act, 1993 (Act 209 of 1993)	Regulates the restructuring of local government.
Mine Health and Safety Act, 1996 (Act 29 of 1996)	Governs the protection of the health and safety of mineworkers.
Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)	Provides for equitable access to and sustainable development of mineral and petroleum resources.
National Environmental Management Act, 1998 (Act 107 of 1998)	Provides for cooperative environmental governance.
National Environmental Management Amendment Act, 2002 (Act 56 of 2002)	Amends the National Environmental Management Act.
National Health Act, 2003 (Act 61 of 2003)	Regulates public health.
National Heritage Council Act, 1999 (Act 11 of 1999)	Establishes the National Heritage Council.
National Heritage Resources Act, 1999 (Act 25 of 1999)	Provides for the protection of heritage resources.
National Nuclear Regulator Act, 1999 (Act 47 of 1999)	Establishes the National Nuclear Regulator.

LEGISLATION	APPLICABILITY
National Parks Act, 1976 (Act 57 of 1976)	Regulates the control, protection and management of national parks.
National Veld and Forest Fire Act, 1998 (Act 101 of 1998)	Regulates veld and forest fires.
National Road Traffic Act, 1996 (Act 93 of 1996)	Regulates national road traffic.
National Water Act, 1998 (Act 36 of 1998)	Regulates all matters relating to water.
Occupational Health and Safety Act, 1993 (Act 85 of 1993)	Provides for the regulation of labour, danger, environment, hazard, health, risk, safety and substance.
Promotion of Access to Information Act, 2000 (Act 2 of 2000)	Promotes access to information.
Promotion of Administrative Justice Act, 2000 (Act 3 of 2000)	Provides for the promotion of administrative justice.
Promotion of Administrative Justice Amendment Act, 2002 (Act 53 of 2002)	Amend the Promotion of Administrative Justice Act.
South African National Roads Agency Limited and National Roads Act, 1998 (Act 7 of 1998)	Establishes the South African National Roads Agency and other matters relating to the road such as controlled road-related waste disposal.
Water Services Act, 1997 (Act 108 of 1997)	Regulates the right of access to basic water supply and basic sanitation and other related matters.

Table B2: Provincial legislation relevant to environmental protection

Legislation	Applicability
Local Government Ordinance, 1939 (Ordinance 17 of 1939)	Regulates nuisance pollution.
Roads Ordinance, 1957 (Ordinance 22 of 1957)	Regulates the control over refuse.
Public Resorts Ordinance, 1920 (Ordinance 20 of 1920)	Regulates nuisance pollution.
Nature Conservation Ordinance, 1983 (Ordinance 12 of 1983)	Regulates nature conservation.
Gauteng Land Administration Act, 1996 (Act 11 of 1996)	Regulates the disposal of provincial land.

Table B3: International environmental conventions and protocols

CONVENTION/PROTOCOL	APPLICABILITY
Vienna Convention for the Protection of the Ozone Layer, 1985	Obliges countries to generally reduce their outputs of ozone depleting substances into the atmosphere.
Montreal Protocol, 1985	Regulates substances that deplete the ozone layer by incorporating the precautionary principle.
United Nations Framework Convention on Climate Change, 1992	Addresses the threat of global climate change by urging governments to reduce the sources of greenhouse gases.
Kyoto Protocol, 1997	Addresses the reduction of greenhouse gases and emissions.

CONVENTION/PROTOCOL	APPLICABILITY
The Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal, 1989 (the Basel Convention)	Regulates the international reduction of the production of hazardous waste and the restriction of transboundary movement and the disposal of such waste.
Convention on Wetlands of International Importance Especially as Water Fowl Habitat (the Ramsar Convention)	The broad aims of this Convention are to minimise the loss of wetland habitats and to promote wise use of all wetlands.
Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (CITES)	Regulates the international protection of endangered species, the economic utilisation of species and the control of illegal trade in species of wild fauna and flora.
Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)	The convention was a response to the need for nations to cooperate in the conservation of animals that migrate across their borders.
Convention on Biodiversity, 1992	The aim is to effect international co-operation in the conservation of biological diversity and to promote the sustainable use of living natural resources worldwide.