AGENDA of the
Portfolio Committee: Infrastructure & Planning
22 November 2016
(Also the agenda for the Mayoral Committee Meeting: 2 December 2016)

9.
INTEGRATED ENVIRONMENTAL MANAGEMENT SYSTEM: OVERSTRAND MUNICIPALITY

17/17/B
P Aplon **(028) 3163724** **Corporate Head Office**
15 August 2016

1. Executive Summary

The purpose of this report is to table the Integrated Environmental Management System (IEMS), which consists of Environmental Management Plan and a series of "Environmental Procedure" documents for approval by Council.

2. Service Delivery and Budget Implementation Plan - IGNITE

Infrastructure and Planning
Environmental Management Section

3. Compliance with Strategic Priorities

Provision of democratic and accountable governance
Provision and maintenance of municipal services
Creation and maintenance of a safe and healthy environment

4. Delegated Authority

None

5. Legal Requirements

- National Environmental Management Act, (NEMA) 1998 (Act 107 of 1998)
- National Environmental Management: Air Quality Act, 2004
- National Water Act, 1998 (Act 36 of 1998)
- National Environmental Management Act: Biodiversity Act, 2004 (Act 10 of 2004)
- National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003)
- Conservation of Agricultural Resources Act, 1983 (Act 43 of 1998)
- Occupational Health and Safety Act, 1993 (Act 85 of 1993)
- National Heritage Resources Act, 1999 (Act 25 of 1999)
- Environmental Conservation Act, 1989 (Act 73 0f 1989)

6. Background/Discussion

Background

The Overstrand Local Municipality is developing and implementing an IEMS. The IEMS is not a typical ISO 14001 EMS, but is focused on inclusion of environmental requirements, objectives and targets in its Integrated Development Plan (IDP). The IEMS which is developed for the Overstrand Local Municipality will consists of a series of environmental audits, on various operational functions of the Municipality. By implementing an IEMS the Municipality seeks to instil "Good Practice" procedures in the operational functions.

It addresses:

- Legal requirements
- Responsibility
- Monitoring, control and review
- Implementation of plans to prevent and mitigate environmental impacts
- Document control
- Training and awareness
- Standards and Operating Procedures

Discussion

With the IEMS, the municipality strives to manage specific operational activities in a manner that does not have a detrimental effect on the environment. Section 28 of the NEMA stipulates the duty of care and remediation of environmental damage.

"(1) Every person who causes, has caused or may cause significant pollution or degradation of the environment must take measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

(2) Without limiting the generality of the duty in subsection (1), the persons on whom subsection (1) imposes an obligation to take reasonable measures, include an owner of land or premises, a person in control of land or premises or a person who has a right to use the land or premises on which or in which-

(a) any activity or process is or was performed or undertaken; or

(b) any other situation exists,

which causes, has caused or is likely to cause significant pollution or degradation of the environment.

(3) The measures required in terms of subsection (1) may include measures to-

(a) investigate, assess and evaluate the impact on the environment;
(b) inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment;
(c) cease, modify or control any act, activity or process causing the pollution or degradation;
(d) contain or prevent the movement of pollutants of degradation; or the causant of degradation;
(e) eliminate any source of pollution or degradation; or
(f) remedy the effects of the pollution or degradation."

The initial set of "Environmental Procedure" documents is specifically aimed at the Hermanus Waste Water Treatment Works (WWTW). If approved, these procedures must be duplicated by other WWTW.

If approved the EMP must be included in the IDP as a Sectoral Plan

7. Financial Implications

All Municipal operational related activities are funded by the Overstrand Municipality in accordance with the IDP and approved budget or its delegated authority.

8. Staff Implications

During the contract period when this specific tender for the drafting and implementation of an Environmental Management Plan was active, Overstrand Municipality also signed a contract with Veolia Water Solutions and Technologies. All Overstrand Municipality's water and wastewater treatment plants and pump stations are being operated and maintained by this private contractor, since 1 November 2015.

All personnel associated with the operation of these installations have been transferred to Veolia as from the same date but the Municipality still needs to ensure that the environmental impacts of these services are kept to a minimum, if any. As the owner of the infrastructure and associated services the responsibility of proper management is still that of the Municipality's.

The contract is being managed by the Directorate Infrastructure & Planning (Hanré Blignaut and Goosen le Roux). All references to Overstrand operational personnel, Operational Manager, Assistant Operations Manager, Function/Departmental Manager, etc., should therefore be revised in terms of the relevant Infrastructure & Planning and Veolia personnel.

All operational related activities will be done by the Operational Department or its delegated authority, ie Veolia.

The Environmental Management Section will handle the auditing component of the IEMS.

9. Comments from other Departments, Divisions and Administrations

The documents were only circulated to the relevant Directors on which this process would have a direct implication in terms of budget allocation and staff.

Deputy Director: Engineering Services: Mr. H. Blignaut- (028) 312 5047

- All Overstrand Municipality's water and wastewater treatment plants and pump stations are being operated and maintained by a private contractor, i.e Veolia Water Solutions & Technologies, since 1 November 2015. All personnel associated with the operation of these installations have been transferred to Veolia as from the same date.
- The contract is being managed by the Directorate Infrastructure & Planning (Hanre Blignaut and Goosen le Roux).
- All references to Overstrand operational personnel, Operational Manager, Assistant Operations Manager, Function/Departmental Manager, etc, should therefore be revised in terms of the relevant Infra & Planning and Veolia personnel, including membership of the various committees and top management, and the Organisational Chart in the EMS Procedure Manual, and the Emergencies, Monitoring and Non-Conformance Files.
- The Aspects and Impacts files appear to be overlapping with the Municipality's existing Waste Water Risk Abatement Plans (WWRAP).
- Veolia as a large international company has their own management systems, and care should be taken not to duplicate efforts. A workshop with Veolia on what is required from them in terms of the EMS may add value.
- The current focus is on the Hermanus WWTW. It is not clear what the planning is w.r.t other functions and installations within the municipality.

Deputy Director: Community Services: Mr. M. Bartman- (028) 312 8982

- It should be pointed out that all our water and wastewater treatment plants as well as all our water and sewerage pump stations are being operated and managed by a private contractor, Veolia Water Solutions and Technologies
- All personnel associated with the operation of these installations are in the service of Veolia.

- The contract is being managed by the Directorate Infrastructure and Planning (Hanre Blignaut and Goosen le Roux)
- All references to Overstrand operational personnel should therefore be revised.
- Membership of the Environmental Management System Committee as well as Top Management will therefore also be affected.
- The same applies to responsibilities and procedures in case on an emergency (see para. 5, 6 of Environmental Emergency Preparedness and Response (EP-05)
- The EMS procedure manual (para 1.4, 1.5, 2.4, 2.5, 2.6) will likewise be affected.
- Environmental Monitoring and Evaluation of Compliance (EP-06) & Enquiry Complaint/ Nonconformity Handling (EP-07) – reference to the Function/departmental Manager should be revised.

Environmental Management Section's response on the comments received:

- It is noted that Veolia Water Solutions and Technologies has taken over the operation and maintenance of all the municipal water and wastewater treatment plants as well as all municipal water and sewerage pump stations. This was not the case when the tender was procured and only came to light after the first draft of the EMS document was received from the consultant.
- The Environmental Management section has been in meetings with Mr Vincent Strangefeld, Operations Manager in the Overstrand region, for Veolia Water Solutions and Technologies. The proposed IEMS will be integrated with the existing systems of Veolia to prevent duplication of processes.
- Overstrand Municipality still has an environmental responsibility, as owners of the infrastructure.
- The IEMS will be rolled out to all other WWTW and Water Treatment Works of the Overstrand. Other operational aspects which will have a potential environmental impact will also be addressed.

10. Annexures

Annexure A: Overstrand Municipality: Environmental Management Plan
Annexure B: Environmental Policy
Annexure C: Environmental Procedure Environmental Monitoring and Evaluation of Compliance
Annexure D: Enquiry / Complaint / Nonconformity Handling
Annexure E: Environmental Management System Manual
Annexure F: Environmental Emergency Preparedness and Response

Annexure G:	Identification of Environmental Aspects and Significance Evaluation
Annexure H:	Comments from other Departments
Annexure I:	Response to other Departments

RECOMMENDATION TO THE COUNCIL:

1. that the Integrated Environmental Management System consisting of the Integrated Environmental Management Plan for Overstrand Municipality, **be approved**; and

2. that the Integrated Environmental Management System, consisting of the Integrated Environmental Management Plan for Overstrand Municipality be included in the Integrated Development Plan as Sectoral Plan**.**

RESPONSIBLE OFFICIAL: **P APLON**

TARGET DATE FOR IMPLEMENTATION: **12 DECEMBER 2016**

AGENDA of the
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9.
INTEGRATED ENVIRONMENTAL MANAGEMENT SYSTEM: OVERSTRAND MUNICIPALITY

17/17/B
P Aplon **(028) 3163724** **Corporate Head Office**
15 August 2016

THIS MATTER SERVED BEFORE THE JOINT PORTFOLIO COMMITTEE ON 22 NOVEMBER 2016, WHICH COMMITTEE RECOMMENDED AS FOLLOWS:

RECOMMENDATION TO THE COUNCIL:

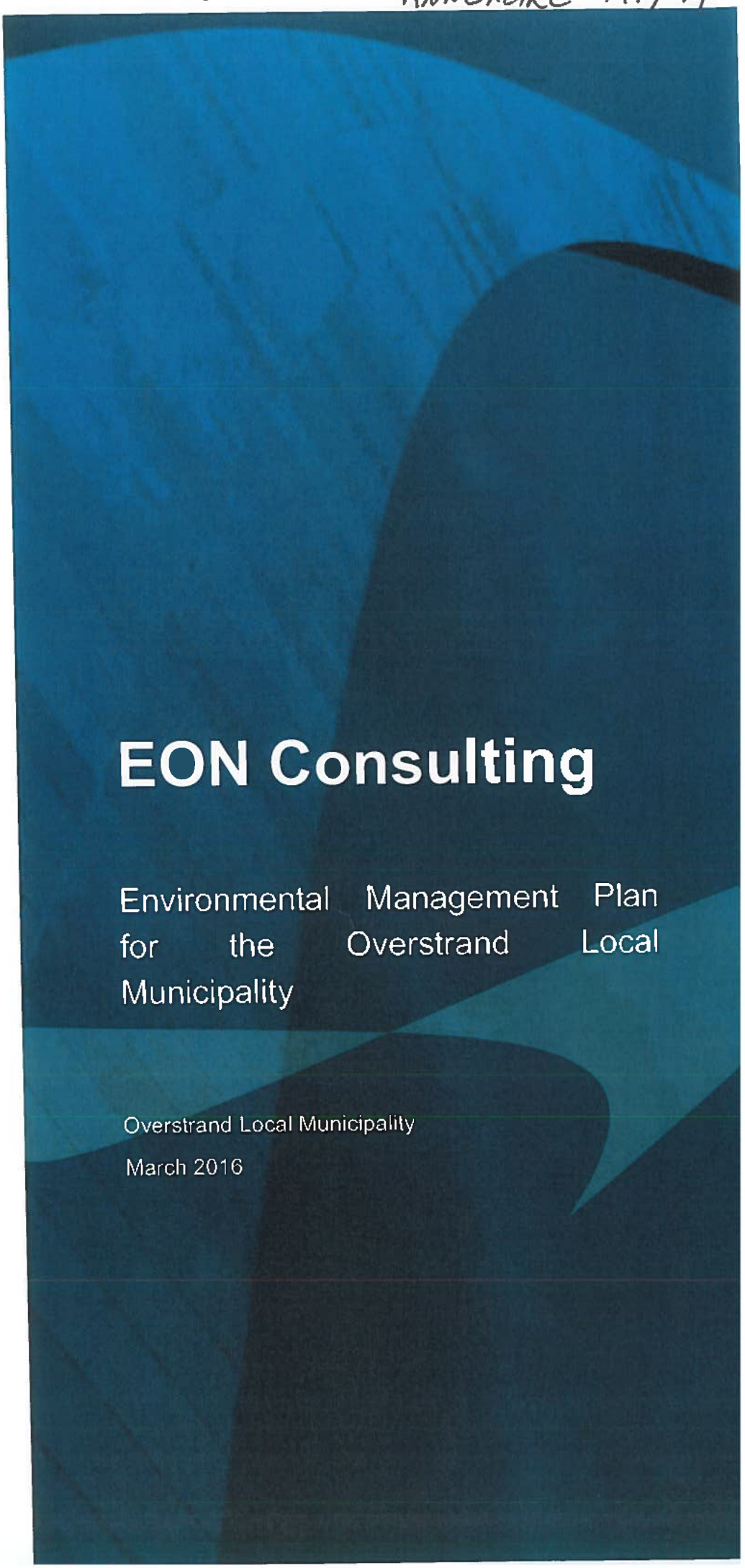
1. that the Integrated Environmental Management System consisting of the Integrated Environmental Management Plan for Overstrand Municipality, **be approved**; and

2. that the Integrated Environmental Management System, consisting of the Integrated Environmental Management Plan for Overstrand Municipality be included in the Integrated Development Plan as Sectoral Plan**.**

RESPONSIBLE OFFICIAL: **P APLON**

TARGET DATE FOR IMPLEMENTATION: **12 DECEMBER 2016**

ANNEXURE A1/74



EON Consulting

Environmental Management Plan for the Overstrand Local Municipality

Overstrand Local Municipality

March 2016

ENABLING BUSINESS TO SUCCEED

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Ms Penelope Aplon
Environmental Officer

Overstrand Local Municipality

4 January 2016

Dear Ms Penelope Aplon,

Herewith please find the final integrated environmental management system report for the Overstrand Local Municipality (OLM). Should there be further queries, please feel free to contact us for clarification.

Yours sincerely,

Aventer

Adri Venter

Principal Consultant

Acceptance

Signed on behalf of Overstrand Local Municipality

Signed on behalf of EON

Aventer

Name:
Title:

Date:

Name: Adri Venter
Title: Principal Consultant

Date: 30 March 2016

1. Acronyms and explanation of terms

Acronym/term	Explanation
Continual improvement	Process of enhancing the environmental management system to achieve improvements in overall environmental performance in line with the municipality's environmental policy
DPSIR	Driving forces, pressures, state, impact and responses (DPSIR) framework. The DPSIR framework is useful for selecting environmental indicators and compiling a state of the environment report (SoER)
EIS	Environmental information system
EMP	Environmental Management Plan
EMR	Environmental management representative: A person appointed by a department to support the development and maintenance of the IEMP and the promotion of legal compliance
EMS	Environmental management system: That part of the overall management system which includes the organisational structure, planning activities, responsibilities, practices, procedures, and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy
Environmental aspect	An element of an organization's activities, products or services that can interact with the environment
Environmental audit	A systematic, documented verification process of objectively obtaining and evaluating audit evidence to determine whether specified environmental activities, events, conditions, management systems, or information about these matters conform with audit criteria, and communicating the results of this process to the client
Environmental impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services
Environmental objective	Overall environmental goal, arising from the environmental policy, that the municipality sets itself to achieve and which is quantified where practicable
Environmental performance	Measurable results of the environmental management system, related to the municipality's control of its environmental aspects, based on its environmental policy, objectives and targets
Environmental policy	Statement by the municipality of its intention and principles in relation to its overall environment performance which provides a framework for action and for the setting of its environmental objectives and targets
IDP	Integrated Development Plan
IEMP	Integrated Environmental Management System
Mitigate	The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action
Monitoring	An activity which ensures that the requirements of the EMP are met
NEMA	National Environmental Management Act,
NEMBA	National Environmental management: Biodiversity Act
NFEPA	National Freshwater Ecosystem Priority Areas

Acronym/term	Explanation
OLM	Overstrand Local Municipality
PES	Present Ecological State
SDBIP	Service Delivery and Budget Implementation Plan as defined by the Municipal Finance Management Act (MFMA)

2. Introduction

The Overstrand Local Municipality is developing and implementing an integrated environmental management system (IEMS). The IEMS is not a typical ISO 14001 EMS, but is focused on inclusion of environmental requirements, objectives and targets in its Integrated Development Plan (IDP). The IEMS which is developed for the Overstrand Local Municipality will consist of a series of environmental audits, on various operational functions of the municipality. By implementing an EMS the municipality seeks to instill "Good Practice" procedures in the operational functions. The IDP makes provision for mandatory sector plans with a direct or incidental focus. The IDP also makes provision for the voluntary adoption and use of sector plans, which is why the Overstrand Local Municipality decided to formulate an Integrated Environmental Management Plan (IEMP).

This report represents the final deliverable associated with the development of the IEMP.

The compilation of the IEMP was preceded by a status quo analysis. The main findings of the status quo analysis are that:

1. The level of operational legal compliance is a concern
2. Document management and control should be improved
3. Some important elements of the environment have not been adequately addressed, such as wetlands and water courses as these relate to river health
4. Current environmental management measures are focused on conservation, whilst other pressures and drivers of environmental degradation have not been adequately described and managed
5. Whilst some programmes, such as waste management, are of a very high standard and probably leaders in SA, there is a need for other sectoral plans to address broader environmental issues of concern, such as water and energy conservation
6. The general level of environmental awareness amongst personnel is commendable; however, job-specific training and an understanding of legal requirements are areas for improvement
7. An environmental management information system will significantly elevate the environmental agenda.

2.1. The cake analogy

Using the example of a three-tiered cake, the ideal situation is described in Figure 1 below. It is important to note that the nature and state of the environment form the baseline which, in conjunction with the service delivery mandate of the OLM, shapes the other tiers of the cake. Each layer has a definite influence on the layer it supports.

The primary components of the approach are:

1. The DPSIR framework leads to understanding the state of the environment as well as the nature of the driving forces and pressures. Based on this understanding, a strategy can be compiled coupled with targets and indicators. The strategy should have a two-pronged approach, namely sustainable development and legal compliance.
2. An EIS will form a vital part of the successful understanding of the state of the environment and progress towards the implementation of programmes and targets.

3. The use of a customized EMS for the control and improvement of the level of legal compliance of municipal operations.
4. The setting of objectives and targets, based on the nature of the environmental baseline should be enacted by means of the second and third tier of the "cake".

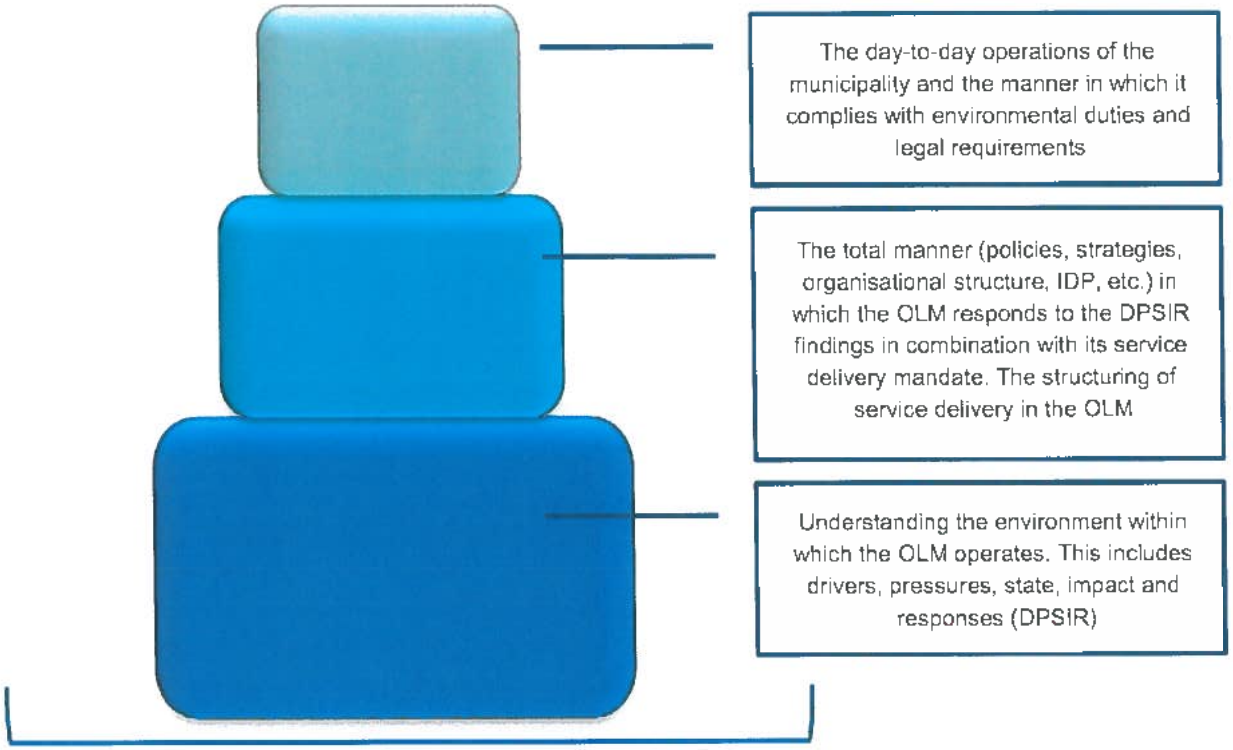

Figure 1: The cake analogy Background elements of a typical EMS

The following section (based on PIESA: EMS Information: Troy Govender, Eskom, Sept. 2012) provides an overview of the typical process involved for the development of a typical environmental management system. However, the OLM's IEMP is not a typical EMS but the process below is of value to address areas of critical importance in terms of legal compliance.

2.2. Initial review

Undertake an initial assessment to establish the current position:

- Legal and policy requirements
- Main activities that have an impact on the environment
- Evaluate performance
- Identify existing management practices and procedures.

2.3. Environmental policy

The establishment of an environmental policy must:

- Be appropriate to the operations and activities
- Include a commitment to continual improvement and prevention of pollution
- Demonstrate commitment to comply with legislation and own standards
- Provide a framework for setting objectives and targets
- Be documented, implemented and communicated.

2.4. Identification of environmental aspects

- Initiate a formal process to identify environmental aspects of activities, products and services
- Use the above to determine those that have a significant impact on the environment and set objectives and targets related to these.

2.5. Legal and other requirements

- Develop a procedure to ensure access to legislation as well as future legislative changes.

2.6. Objectives and targets

- Set objectives and targets related to significant impacts and areas of strategic importance.

2.7. Environmental management programme(s)

- Establish and maintain programmes to achieve objectives and targets
- Set responsibility to achieve targets
- Set time frames
- Allocate resources
- The Environmental Management Programme must be amended to reflect new development projects.

2.8. Structure and responsibility

- Roles, responsibilities and authority must be defined, documented and communicated
- Resources must be provided for the EMS
- A management representative must be appointed to ensure that the EMS is established, implemented and maintained
- A representative must report on performance.

2.9. Training, awareness and competence

- Identify training needs
- All personnel whose work impacts on the environment must receive appropriate training
- All personnel should be made aware of:
    - The importance of conformance to the policy, procedures and plans
    - The impact their work can create
    - Their roles and responsibilities
    - Consequences if they don't follow operating procedures.

2.10. Communication

- Set procedures for internal communication
- Have a procedure to deal with receiving, documenting and responding to external interested and affected parties
- Have a process for external communication on all significant aspects and impacts.

2.11. EMS documentation

- Have a document that describes the core elements of the EMS
- Provide direction or linkages to other relevant documents
- Ensure that current versions are readily available that old documents are removed, and legal documents are retained.

2.12. Operational control

- Identify all operations and activities that affect or could affect the environment
- These activities must be carried out under specific conditions by:
    - Having procedures or work instructions for them
    - Setting criteria in the procedures

- Having procedures relating to aspects with significant impacts
- Communicating these to suppliers and contractors.

2.13. Emergency preparedness and response

- Have procedures to identify risk areas
- Develop procedures to respond to incidents
- Prevent further impacts (contain)
- Review emergency procedures and test for effectiveness.

2.14. Monitoring and measurement

- Have procedures for monitoring key characteristics of operations
- Have measures to monitor key activities
- Calibrate and maintain and record all information
- Evaluate compliance against legislation and regulations.

2.15. Non-conformance and corrective and preventative action

- Have processes for undertaking formal investigations into incidents
- Define responsibilities for: handling, investigating, taking mitigatory action, and for initiating and completing corrective and preventative action
- Corrective and preventative action taken must be documented and relevant procedures/work instructions changes.

2.16. Records

- Have a procedure for identifying, maintaining and disposing of environmental records
- The records required are:
  - Training material
  - Audit reports
  - Incident investigations
  - Procedures and work instructions
  - Contracts
  - Complaints register.

2.17. EMS audit

- Establish and maintain procedures and programmes for environmental audits
- Determine conformance of EMS
- Determine if EMS has been properly implemented and maintained
- Use the results to make changes.

2.18. Management review

- Top management to do a formal review of EMS and change it, based on:
  - Past incidents
  - Changes in legislation
  - Performance results
  - Change in structure, management, responsibilities
  - New projects.

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3. Gap analysis based on indicators and OLM current status

Based on the review of best practices (status quo assessment) and a description of the ideal situation, a set of criteria has been compiled encompassing the organisational requirements for the implementation of the IEMP. These criteria are provided in Table 1 below. These findings form the basis of the compilation of the IEMP. Weighting has been assigned to the indicator elements in order to prioritize the implementation of the IEMP.

A three-tiered weighting system has been used in the table below. Legend for interpretation (A):

Short term		Critically important	
Medium term		Important	
Long term		Part of continual improvement	

A combination of, for example short term and critical importance will push an indicator upwards in the hierarchy. For the purpose of the compilation of the IEMP, short-term indicators of critical importance are addressed in the IEMP.

Legends for interpretation (B): Each block represents 25%. Thus if all the blocks are coloured, it implies that there is 100% compliance.

Table 1: Scoring of the current status of the proposed indicators

Issue	Indicators	Status quo score	Weighting
General			
Adequacy of bylaws	% of bylaws addressing environmental concerns		
Status of environmental awareness	% of employees understanding the environmental implications of their role, duty and responsibilities		
Monitoring & support	% of environmental aspects and impacts monitored and reported on		
Tools and SOPs	% of tools and SOPs adequately		

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Issue	Indicators	Status quo score	Weighting
	addressing environmental concerns		
Environmental education & awareness programmes for personnel	Number of programmes and % of personnel who completed the programme		
Organisational structure	Adequacy of environmental institutional arrangements: roles and responsibilities		
Baseline	Established baselines for the purpose of monitoring progress		
Internal regulation			
Monitoring of EMP adherence	Evidence of monitoring EMP adherence		
Information and data management	Document control, environmental management information system		
Performance reporting	Reporting on environmental performance		
Performance monitoring of internal operations	Extent, adequacy and frequency of monitoring adherence to environmental legislation of internal operations		
Management of non-compliances	Protocol for escalation of non-compliances		
Monitoring of integrated environmental management requirements	Screening done to ensure that no activity commences without the required environmental authorisations		
Level of operational	% of non-compliances		

Issue	Indicators	Status quo score	Weighting
legal compliance			
Integrated sector plans			
Compilation of sector plans	% of required sector plans		
Integration with other spheres of government	Number of integration forums		
Responses to local environmental sensitivities			
Management plans	% of required management plans developed and implemented		
	% of estuary management plans		
	% of management plans for protected areas		
	% of wetlands and water courses identified, mapped, buffer zones implemented and management plans compiled		
	Adequacy of conservation plans for proportional protection of biomes		
	Red data species protection plan		
	Air quality management plan		
	Biodiversity corridor and connectivity		

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Issue	Indicators	Status quo score	Weighting
	management plan		
	Environmental measurement		
State of the environment report	Integrated reporting on environmental problems and significance ratings for the purpose of prioritisation and compilation of related action plans		
Environmental MIS	Established EIS, compilation of several data layers to enrich information and understanding of environmental matters as well as monitoring and reporting		
Document management and control	Presence of a document management system, inclusive of the availability of relevant documents to site personnel and the environmental division		
	Sectoral plans		
Best practice sustainable development plans/actions related to external services	Waste management, recycling and waste minimisation		Waste minimisation to be addressed
	Climate change		
	Energy conservation and demand management		
	Water conservation and demand management		
	River health		

Issue	Indicators	Status quo score	Weighting
	Alien species and fire management		
	Sustainable housing (renewable energy, rainwater harvesting, etc.)		
	Storm water best management practices		
	Management line (set-back zone) as required by the NEM:IMCA – this is being discussed, but has not been implemented		

The following list based on the table above represents the elements of critical importance and the solutions proposed in this document:

Table 2: Priority areas related to the EMS

Elements of critical importance	Proposed solutions
1. Adequacy of environmental institutional arrangements: Roles and responsibilities	Refer to new organisational structure for the Environmental Management Section
2. Established baselines for the purpose of monitoring future progress	Refer to new organisational structure for the Environmental Management Section: new section responsible for environmental information and data management. The status quo report should be referred to as the baseline status.
3. Implementation of integrated environmental authorisations and adequacy of procedures to ensure adherence to EIA regulations (including EMPs associated with environmental authorisations and water use licences)	Refer to EMS EIA procedure
4. Information and data management and establishment of an EIS, compilation of several data layers to enrich information and understanding of environmental matters as well as monitoring and reporting	Refer to new organisational structure for the Environmental Management Section: new section responsible for environmental information and data management
5. Document control, environmental management information system	Refer to EMS document control and record keeping procedure

Elements of critical importance	Proposed solutions
6. Protocol for escalation of non-compliances	Refer to EMS document regarding escalation of non-compliances
7. Level of operational legal compliance	Refer to EMS procedure manual
8. Management plans for protected areas and estuary management as well as wetlands and watercourses (identified, mapped, buffer zones implemented and management plans compiled). Management line (set-back zone) as required by the NEM:IMCA	Refer to new organisational structure for the Environmental Management Section: additional responsibilities to be assigned to Manager: Biodiversity

4. IEMP principles

The following set of principles forms the basis of all objectives and targets of the OLM EIMP.

Table 3: Principles of the IEMP

Principle	Document key
1 Recognize of the intrinsic value of biodiversity and natural ecosystems by protecting and restoring them	
2 Develop and enable cooperative networks towards a sustainable municipality and town	
3 Enable communities to minimize their ecological footprint	
4 Modelling urban processes on ecological characteristics and processes to create a sustainable municipality and town	
5 Empower local communities to support the drive towards a sustainable town	

Principle		Document key
6	Promote sustainable production and consumption through the appropriate use of environmentally sound technologies and effective demand management	
7	Enable continual improvement and good governance through leading by example	

The document keys will be used to demonstrate the integration of the principles into the IEMP.

5. Roadmap of the IEMP

Figure 2 below provides an overview of the IEMP by indicating the main components of the system and its inter-relationships with municipal corporate and governance systems to ensure the successful implementation of the IEMP.

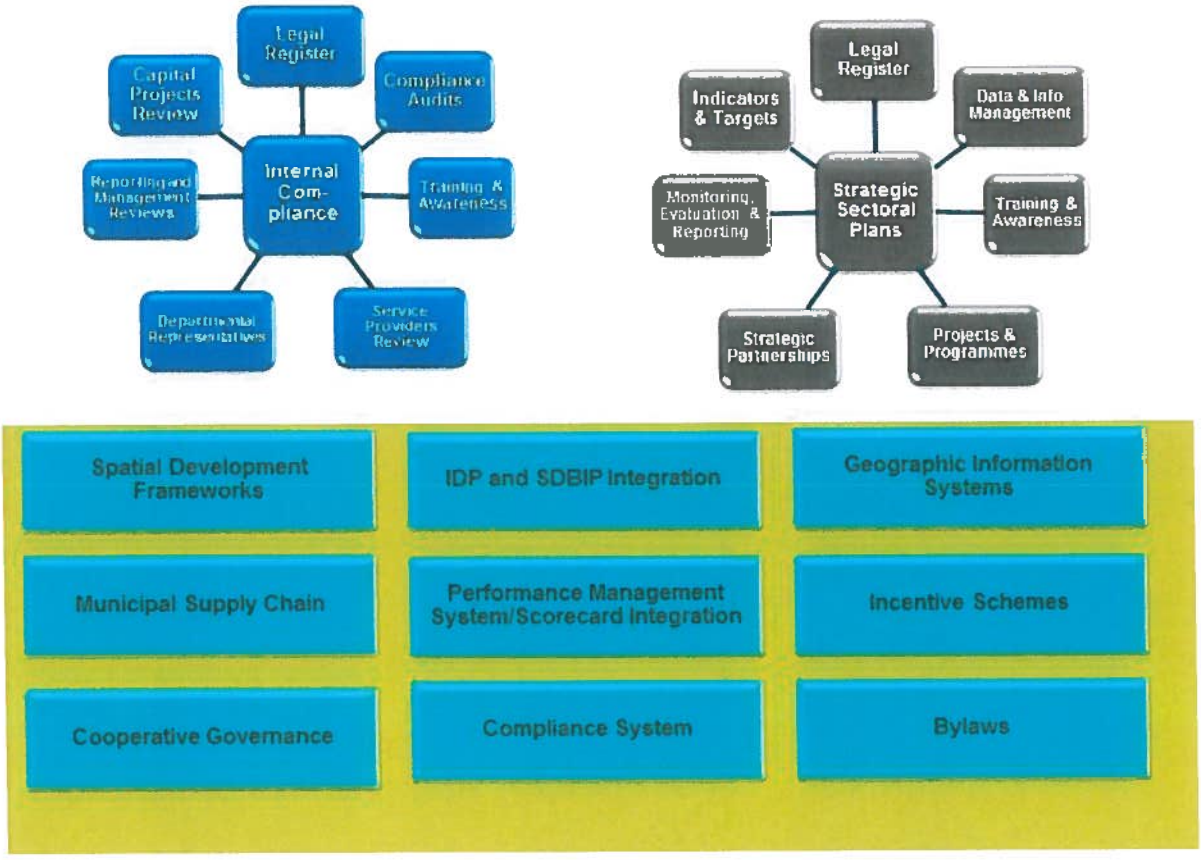

Figure 2: Roadmap of the IEMP

6. Key objectives to support the IEMP

The IEMP encapsulates the following objectives in order to ensure effective and successful implementation:

1. To build institutional capacity at all levels of the OLM in order to ensure that the IEMP is effectively implemented
2. To enable on-going and incremental improvement in the management, protection and quality of the OLM environment
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
4. To monitor and evaluate the IEMP related programmes and objectives
5. To promote corporate environmental responsibility.

7. Key linkages

In order to ensure successful implementation of the IEMP, linkages have to be established with the responsible departments/stakeholders to integrate the key objectives of the IEMP into their strategies and programmes:

1. Spatial Development and Planning
2. Economic Development
3. Basic service delivery, including roads, storm water, waste management, sanitation and drinking water
4. Tourism.

The Environmental Management Department of the OLM will facilitate sessions with key representatives of the relevant departments to identify suitable points of intervention and related objectives and targets.

8. Mandates and duties in terms of applicable environmental laws

A detailed discussion of the mandate and obligations of the OLM is attached as an Annexure. The IEMP is based on the findings of the legal review.

A legal register has been compiled and is attached as an Annexure.

The legal register has to be updated and maintained and the EM Department in conjunction with Departmental Environmental Representative will be responsible to ensure that the legal registers remain correct.

9. Proposed organizational structure, roles and responsibilities

The existing responsibilities of the Environmental Management Section (EMS) of the Overstrand Local Municipality can be summarized as follows: *Make input into and follow the requirements of the IDP, the SDF, the EMF, the management documents for the municipality such as the estuary management plans, nature reserve management plans and any other policies or documents as may be drawn up from time to time.*

These responsibilities have to be extended to include the following:

1. Promotion and facilitation of corporate environmental legal compliance through management of the EMS
2. Establishment and maintenance of an environmental management information system
3. Ensuring compliance with integrated environmental management as well as the requirements for water use licensing
4. Development and facilitation of strategic environmental sectoral plans.

Table 4 outlines the recommended responsibilities and implementation tools for each task. This includes initiatives where the OLM is working together with the Overberg DM, such as the air quality management. In addition, liaison with the provincial and national authorities needs to be on-going.

Table 4: Responsibilities and tasks associated with the extended responsibilities of the EM Section

Responsibility	Tasks	Implementation tools
Strategic environmental sectoral plans		
Climate change	Planning: land use planning; EIAs; protected area expansion; collaboration with industry; water supply systems; reduced GHG emissions; green economy; disaster planning	Compile a climate change strategy
Land care	Erosion; pollution	Compile a land care strategy
Estuary management	Ensure compliance with relevant legislation and continued protection of estuaries There are currently three draft estuary management plans in place (Klein River, Bot River & Uilkraalsmond). There are also estuary forums for each of these estuaries. Estuary forums have been established for the Klein River, Bot River, Uilkraalsmond and Onrus estuaries. The municipality is currently leading the process for the compilation of an Onrus estuary management plan	Develop, finalise and implement EMPs for all estuaries in the OLM Establish estuary management committees/forums for estuaries not currently having committees/forums (with representatives from the catchment management agency/DWS, landowners (upper catchment and in vicinity of estuary), provincial government (environment). Monitor the implementation of the estuary management plans.
Water resources	Identification and protection of the integrity of water resources in the OLM	Establish/finalise a GIS related to water resources. Integrate the environmental overlay zone in relevant existing municipal systems (e.g. town planning schemes). Compile a catchment profile and implement water resource protection measures through the following measures: • Review of EIAs in the jurisdiction area of the OLM and stating relevant requirements • Ensure that municipal operations comply/support water resource protection measures • Incorporate water resource protection measures in town planning scheme (storm water management, wetland protection, riparian zone protection

Responsibility	Tasks	Implementation tools
Strategic environmental sectoral plans		
		etc.) Integrate data and information about: • Land use planning • Spatial development frameworks • Open space systems • Conservation plans (e.g. biodiversity, nature conservation, protected areas)
Coastal zone	Coastal set-back lines – established by the Province in consultation with municipalities; NOTE - some beach regulations have been 'saved' from the Sea Shore Act (1935)	The determination of the Overberg coastal setback lines was done in conjunction with the Department of Environmental Affairs: Sub-Directorate: Coastal Impact Management Directorate: Spatial Planning and Coastal Impact Management. Ensure that the setback lines are included in town planning schemes and conformed with in the event of all new developments
Protected areas	Liaise with provincial and national authorities; liaise with the public; incorporate individual reserves into larger units (e.g. conservancies); manage open space with conservation objectives in mind	Set conservation targets for protected areas Establish public/private partnerships (PPPs) regarding the conservation and management of sensitive areas
Flora	Liaise with provincial and national authorities on the conservation of the diversity (e.g. alignment of mandates); liaise with the public; design open spaces to address the conservation of flora and fauna; liaise with the EPWP (Working for Water and other programmes) to conserve the biodiversity)	Link the distribution range of protected species with the strategy for protected areas

Responsibility	Tasks	Implementation tools
Strategic environmental sectoral plans		
Fauna	Overall conservation to conserve ecological functioning and processes	Link the distribution range of protected species with the strategy for protected areas
Alien invasive species control	Compliance with NEMBA	Alien invasive species control plan to be developed
Environmental management system (EMS)	Ensure that the requirements of the EMS are adhered to	Facilitate the development and implementation of the EMS through: • Training • Internal audits and audit reporting • Bi-annual reporting to top management and annual reporting to Council
Wetland identification	Ensure that wetlands in the municipal area have been identified and that new service delivery infrastructure does not traverse wetlands or have impacts on wetlands without the required environmental authorisations	Develop a wetland inventory by refining and ground truthing the NFEPA wetland layer Ensure inclusion of the wetland locations in the town planning schemes Make the wetland GIS layer available to developers and the Provincial Government

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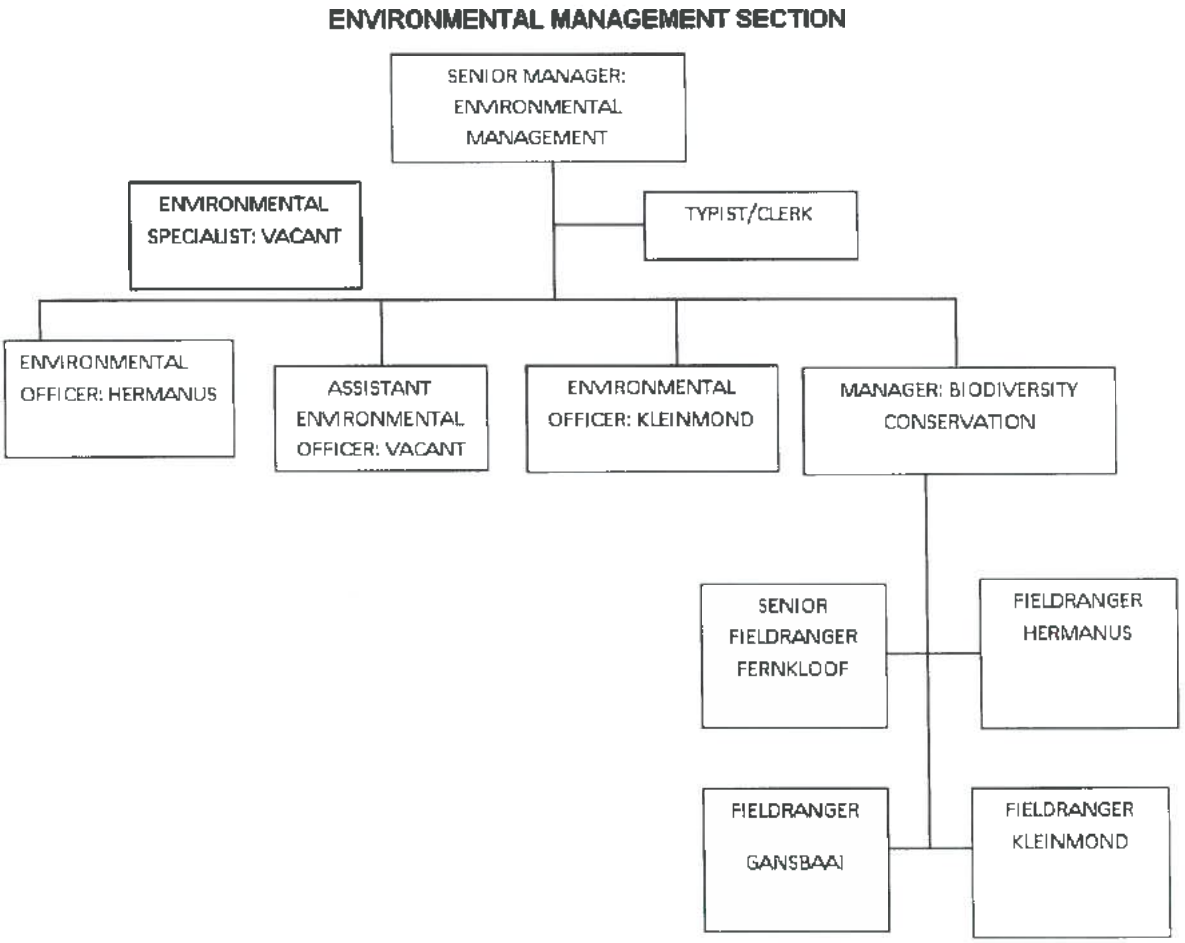

Figure 3: Current organizational structure of the OLM Environmental Management Section

The organizational structure in Figure 3 relates to the Environmental Management Section. The review of the current structure will be investigated by the OLM with reference to human resources and available budget and then approved. The duties related to the positions indicated in the proposed organisational structure are indicated below.

9.1. Senior Environmental Manager

- Manage the total section as well as: strategy, information and training
- Oversee the development and implementation of sectoral strategies
- Develop and implement municipal training and awareness as well as community awareness programme
- Coordinate the management of environmental information for planning and monitoring purposes

9.2. Regional Manager

The Regional Manager oversees the Environmental Officer of each sub region. The main objectives of this section are:

- Progressive development and implementation of a corporate environmental management system to reduce the municipality's environmental footprint and promote/ensure environmental legal compliance

- Evaluate all developments (development proposals, town planning applications, building plans and infrastructure projects) for environmental sustainability
- Liaise and engage with stakeholders concerning the state of the environment and advise the Municipal Council and Municipal officials on environmental matters.

9.3. Biodiversity Conservation Manager

- Management of municipal nature reserves and open spaces of biodiversity importance
- Overseeing the development and implementation of an alien invasive management strategy and coastal management strategy.

10. IEMP operational manual: governance structures, procedures and organizational alignment

An EMS has been developed for the Hermanus Waste Water Treatment Works. This is serving as an example for the development of specific EMSs in the rest of the municipality. The relevant documentation that has been developed is contained in an Annexure.

10.1. Governance instruments

The following governance instruments form part of the IEMP:

1. Appointment of an environmental management representative in each department identified to have significant environmental impacts. These are:

1.1. Operational Department
1.2. Engineering Department
1.3. Fleet Management

2. Environmental performance management, keeping of records, management review and improvement of the IEMP as set out below
3. Bi-annual reporting on environmental performance to municipal top management
4. Annual reporting on environmental performance to Council
5. Inclusion of environmental targets and objectives in the SDBIP and mid-year budget and performance report
6. Inclusion of environmental responsibilities in the contract of Section 57 employees
7. Inclusion of relevant EMPs in the IDP
8. Inclusion of relevant key performance indicators (KPIs) on the Compliance Assist System

In terms of compliance of contractors (appointed by the OLM) to environmental legislation and any EMP set by the OLM, the following governance instruments must be deployed:

1. Proposed infrastructure developments must be screened by the EM Section to determine if any environmental authorisations and/or water use licenses are required as well as impacts on environmental conservation/sensitive areas in terms of the EMF and environmental GIS overlay.

2. Tender documents must include legislative compliance, as well as any EMP approved in terms of water use license and environmental authorisation
3. Tender documents must refer to the generic EMP that has been compiled for activities where no EMP is available. The purpose of the generic EMP is to prevent incidences of legal non-compliance and promote environmental best practice and environmental protection
4. Contracts with the successful tenderer must include performance management measures regarding environmental compliance as set out above, as well as penalties and corrective measures in the event of non-compliance
5. The EM Section will audit contractors (with reference to projects that did not require an environmental authorization and does not have an Environmental Control Officer (ECO) as part of the approved project) based on the aforementioned performance management measures
6. The EM Section must receive copies of all approved infrastructure development contracts (with reference to the aforementioned projects) to enable them to select activities to be audited based on environmental sensitivities.

10.2. Environmental performance management

10.2.1. Setting of objectives and targets

1. Objectives and targets must be identified for each significant impact in the respective divisions in cooperation with the EM Section, the EMR and relevant personnel and management of the division
2. Objectives and targets must be formally recorded; responsibilities must be assigned as well as time frames and must be formally communicated. Objectives and targets must be measurable
3. To ensure continual improvement new/additional objectives and targets are to be set at least annually.

10.2.2. Environmental management Plans

1. EMPs will be formulated for each environmental objective and target by the EMR and any other person identified by the EMR and/or assisted by the EM section
2. EMPs will include roles and responsibilities, timeframes, means of achieving objectives and targets as well as progress review dates
3. Work instructions will be formulated by the EMR and any other person identified by the EMR, to ensure correct implementation of all EMPs
4. EMPs will be revised by the EMR with the assistance of the EM section if environmental aspects and impacts changes or when objectives and targets have been reached
5. All EMPs will be kept by the EMR and copies thereof will be available at each relevant section in the division by the person in control of a section, as well as persons responsible for actions, as indicated on the EMP
6. Continual improvement will be demonstrated by the annual update of the EMP.

10.2.3. Management reviews

Progress with objectives and targets as well as EMPs must be reviewed at every departmental management meeting.

10.3. Keeping of records

Environmental records of the following must be kept by the EMR:

1. Permits, licenses, environmental authorisations and environmental management plans
2. Maintenance and calibration records for equipment

3. Records on incidents and associated corrective actions that were taken
4. Records on emergency preparedness and response
5. Records on audit results
6. Records on management reviews
7. Records on monitoring and measurement
8. Training records (where applicable)
9. Communication with and from the relevant environmental authorities.

The municipality has an existing electronic filing system. The EMS Section has to liaise with the relevant staff to create new files (related to the list above) as per the requirements of the IEMP.

Hardcopies of specific documents e.g. permits/licenses on site have to be kept onsite in line with the approved environmental management plans of environmental authorisations for projects.

10.4. Management review and improvement of the IEMP

1. Internal management reviews must be carried out bi-annually and minutes must be taken during the meeting
2. The initial review meeting is attended by the EMR, management of the particular division and representatives from the EM Section
3. Review findings are discussed and feedback is given on performance of the division in terms of progress with targets to top management and any related problems and changes are discussed
4. Any shortcomings or changes identified during the review must be addressed by the EMR
5. The management of the division must report bi-annually on the status of their department to the top management of the municipality and annually to Council
6. The EM Section must review all reports submitted as part of the management review process and make recommendations on an annual basis for the improvement of the IEMP.

11. Monitoring and measurement

In order to monitor and measure the status of the IEMS as well as continual improvement, the following is proposed:

1. An environmental monitoring and measurement programme
2. A reporting protocol to facilitate environmental performance management
3. A set of indicators
4. Monitoring, measuring and reporting toolkit and protocol
5. Record keeping.

11.1. Environmental indicators

The following environmental indicators should be reported on:

1. Total number of findings with a high significance (during auditing and management reviews)
2. Total number of findings with a medium significance (during auditing and management reviews)
3. Status of the following (with reference to the generic EMP, sectorial plans and IEMP):

3.1. Alien vegetation status
3.2. Biodiversity conservation status
3.3. Complaints received from the community in terms of environmental matters
3.4. Emergency incidences

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3.5. Waste water effluent quality
3.6. Rehabilitation initiatives
3.7. Erosion related to storm water
3.8. River and wetland management and status

4. Age of findings in months before close-out
5. Number of management procedures found to be inadequate
6. Number of findings with respect to general duty of care as per NEMA.

In order to determine the significance of findings, the methodology below should be followed.

11.2. Methodology to rate and assess significance

$$Significance = \frac{Probability \times Severity}{Mitigation}$$

11.2.1. Determining the severity of an impact

Determining the severity of an impact is a function of intensity, duration and extent, divided by the extent to which mitigation can successfully be applied:

$$\text{Severity} = \text{Intensity} + \text{Duration} + \text{Extent}$$

Each of the three factors used to determine the severity of an impact are described below:

11.2.1.1. Intensity factor

The level of intensity is the sum of volume, toxicity, social impact and ecological impacts. Note that either Volume A or Volume B is used (refer to the description) but never both at the same time.

Table 5: Intensity assessment table

	Low (1)	Medium (3)	High (5)	Subtotal (sum)
Volume (A) (refers to process input and output substances/ material or products)	Less than 80 m^3 at any one time (or low volumes relative to industry/commercial standards)	Between 80 and 300 m^3 at any one time (or medium volumes relative to industry/ commercial standards)	In excess of 300 m^3 at any one time (or high volumes relative to industry/ commercial standards)	
Volume (B)	Relatively small	Medium	Large	

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	Low (1)	Medium (3)	High (5)	Subtotal (sum)
(refers to natural resources)				
Toxicity	Toxicity is on par with everyday goods in widespread use and is biodegradable	Toxicity can be compared to those that have to be handled with some caution and are non-biodegradable	Toxicity is on par with toxic/dangerous/ flammable substances that are non-biodegradable	
Social	No or very limited impact	Some impact on immediate communities, but cannot be considered as disruptive	Major disruptive impact on surrounding communities	
Ecological	Natural functions not affected or negligible	Environment affected but natural functions and processes continue (Some damage or wildlife injury may occur) Impact is reversible or irreplaceable loss will not occur	Environment affected to the extent that natural functions are altered to the extent that it will permanently or over the long term cease (Major damage or wildlife injury could occur) Irreplaceable loss will occur	

11.2.1.2. Duration

Duration is assessed and a factor awarded in accordance with the following:

Table 6: Duration assessment table

	Duration of Impact	Duration factor
Short term	The duration of the is impact is 1 year or less	Factor 1
Medium term	The duration of the is impact is 1-5 years	Factor 3
Long term	The duration of the is impact is 5 to 25 years	Factor 4
Permanent	The duration of the is impact is longer than 25 years and can	Factor 5

be considered as permanent

11.2.1.3. Extent

Extent describes the physical extent that the impact and factors are awarded according to the following:

Table 7: Extent factor rating and description

	Extent of the impact	Extent factor
Site	The impact only exists within the activity's footprint	Factor 1
Local	The impact could affect the whole or a considerable portion of the properties on which the activity is undertaken as well as neighbouring properties	Factor 3
Regional	The impact could affect the area, neighbouring as well as other areas further away than the immediate neighbours	Factor 5

11.2.2. Probability

Probability describes the likelihood of the impact actually occurring, and is rated as follows:

Table 8: Probability factor rating and description

	Possibility that impact will occur	Rating
Improbable	Low possibility of impact occurring due to design or history	1
Probable	Distinct possibility that impact will occur	2
Highly probable	Most likely that impact will occur	3
Definite	Impact will definitely occur	5

11.2.3. Significance rating

Following from the above, the significance rating can now be determined as follows:

Significance = Severity x Probability

The significance rating thus determined should influence the proposed project as described below:

11.2.3.1. Negligible (calculated significance rating < 25)

Positive and negative impacts of negligible significance are unsubstantial and should have little or no influence on the proposed development project.

11.2.3.2. Low (calculated significance rating 25 < 50)

The impact is limited and should not have a material effect on the decision to continue. Management intervention is required.

11.2.3.3. Moderate (calculated significance rating 50 < 90)

Positive impact: Should weigh towards a decision to continue, should be enhanced in final design.

Negative impact: Should weigh towards a decision to terminate proposal, or mitigation should be performed to reduce significance to a low significance rating.

11.2.3.4. High (calculated significance rating > 90)

Positive impact: Continue

Negative impact: If mitigation cannot be implemented effectively (into the moderate category), proposal should be terminated.

Table 9 below provides an example of how the unmitigated significance ratings are calculated:

Table 9: Significance rating

Probability	Severity							Severity rating	Significance rating (probability x severity rating)	
	Intensity		+ Duration		+ Extent		=			
Probable	2	Low	4	Short term	1	Local	2	7	14	Negligible
Probable	2	Low	4	Medium term	3	Regional	3	10	20	Low
Definite	5	Medium	12	Medium term	3	Local	2	19	85	Moderate
Definite	5	Medium	12	Permanent	5	Site	1	26	180	High

11.2.4. Mitigation

Mitigation rating can only be applied to potential impacts. Mitigation will be calculated as follows:

Table 10: Mitigation rating

Description	Factor allowed
Mitigation is not possible or positive impact of mitigation is negligible. Impact remains irreversible.	1
Mitigation is possible to some extent with moderate levels of positive impact. Impact is largely reversible with only a small portion that remains as irreversible.	2
Mitigation is possible with moderate to high levels of positive impact. Impact is reversible.	3
Mitigation is possible to such an extent that all negative impacts are reduced significantly or eliminated. Impact is completely reversible.	4

$$Significance = \frac{\text{Intensity} + \text{Duration} + \text{Extent}}{\text{Mitigation Potential}}$$

11.3. Environmental monitoring and measurement programme

Based on the indicators, the following programme is proposed:

Table 11: Indicators to measure the IEMP

Indicator	Reporting frequency and reporting recipients
a. Total number of findings with a high significance (during auditing and management reviews)	Quarterly reporting to Senior Management
b. Total number of findings with a medium significance (during auditing and management reviews)	Quarterly reporting to Senior Management
c. Status of sectorial plans • Alien vegetation status • Biodiversity conservation status • Rehabilitation initiatives • Erosion related to storm water • River and wetland management and status	Annual reporting to Senior Management and Council
d. Age of findings in months before close-out	Quarterly reporting to Senior Management
e. Number of management procedures found to be	Quarterly reporting to Senior Management

Indicator	Reporting frequency and reporting recipients
inadequate	
f. Emergency incidences	Quarterly reporting to Senior Management
g. Waste water effluent quality	Quarterly reporting to Senior Management
h. Complaints received from the community in terms of environmental matters	Quarterly reporting to Senior Management

The Environmental Management Representatives of the respective divisions/departments must report monthly to the EM Section. The EM Section will consolidate the information for the purposes of reporting as set out in Table 12 below.

For the purposes of monthly reporting to the EM Section, the following reporting format is proposed:

Table 12: Reporting format for indicators

Division:				
Month:				
Indicator	Number of	Environmental impact (soil, water, air, etc.)	Open/ closed out	Brief description of the finding
Total number of findings with a high significance				
Total number of findings with a medium significance				
Findings closed-out				
Findings still open				
Number of management procedures found to be inadequate				
Emergency incidences				
Complaints received from the community in terms of environmental matters				

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12. Policy, objectives and targets

ENVIRONMENTAL POLICY

The Overstrand Local Municipality strives to achieve an exceptional quality of life for every generation and leave a legacy of stewardship. We will work together to achieve lasting and equitable prosperity; build safe, healthy, vibrant communities; and minimize our negative impacts in order to conserve the natural resources that sustain us. We are committed to improving the local environment and helping to protect it for the future. We recognise that our wide range of activities and services has positive and negative impacts upon the environment, and that we have a leading role to play in creating a sustainable town. The Municipality is implementing an environmental management system across all of its services to ensure that its significant environmental impacts will be monitored and managed, and its overall environmental performance will continually improve. To achieve this we:

- Identify all our environmental impacts
- Comply with environmental legislation
- Continually improve our environmental performance
- Regularly reviewing and report on progress

As a Green Town we strive to preserve water quality and quantity, terrestrial habitats and marine habitats, biodiversity and ecosystem integrity. Development will be pursued in harmony with the environment by using developed spaces wisely to make the best use of existing infrastructure and to minimize disturbance of undeveloped green spaces. It means considering natural cycles such as water, carbon and nutrient movement through the environment, prior to development, to protect their function and integrity. We will take an ecosystem management approach in the protection of our natural resource features. This includes land use policy, planning, incentives and education to increase tree cover, protect wetlands, create and preserve natural terrestrial, aquatic and marine habitats and corridors, manage storm water and protect groundwater and surface water resources.

Table 13: Environmental policy related actions

Outcome	Key actions	Outputs	Service responsibility	Delivery date
Municipal service delivery in line with environmental best practices	• Implementation of EMS across the municipality • Training and awareness • Appointment of environmental representatives • Training of environmental representatives	EMS implemented in all municipal departments	EM Dept. to facilitate key actions across all departments	December 2016

Outcome	Key actions	Outputs	Service responsibility	Delivery date
	• implementation of management and reporting procedures			
Overstrand jurisdiction areas are green	Development and implementation of sectoral plans	• Energy plans • Water resource protection • Biodiversity management plans • Climate change strategy • Vegetation management plan • Fernkloof management plan • Coastal management plan	EM Dept. to facilitate key actions across all departments	One completed strategy per annum

13. Toolkits

The following toolkits have been developed to assist with the effective and efficient implementation of the IEMP:

- Audit protocols
- Site checklists
- Management, risk assessment and tracking tool
- Environmental indicators in support of quarterly and annual reporting.

The toolkits are separate files.

14. Training needs

In order to ensure that the Environmental policy is successfully implemented throughout the municipality, the following actions are required:

1. Develop and implement the following training programmes for the different personnel categories as indicated in Table 14:
   - Awareness (A)
   - Job specific training (JST)
   - EMS training programmes for environmental representatives

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Develop and populate an occupation classification matrix in order to identify trainees for the different training categories with reference to Table 14.

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

Table 14: Environmental training needs analysis

Topic	Top Management	Middle Management	Professionals	General/ admin personnel	Workers and their supervisors
Environmental legislation and the duties these impose	■	■	■		
National Environmental Act: principles and the integration thereof in strategies and policies of the municipality	■	■	■		
Environmental impact assessments and water use licensing		■	■		
Water resource management		■	■		
Waste management		■	■		■
Environmental pollution		■	■		■

Topic	Top Management	Middle Management	Professionals	General/ admin personnel	Workers and their supervisors
Duty of care					
Biodiversity / ecosystems / wetlands / estuaries					
Environmental management systems for EMS representatives					
General environmental awareness					

= Awareness = In-depth training = Job-specific training

14.1. Community Education

Education and public awareness is an integral part of sustainable development and an important part of a community's understanding of environmental consequences 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 also enables understanding and appreciation, which in turn leads to a desire to conserve and protect the surrounding environment and resources.

The principles of environmental education, according to the Tbilisi Declaration, are:

1. Awareness and sensitivity to the environment and environmental challenges
2. Knowledge and understanding of the environment and environmental challenges
3. Attitudes of concern for the environment and motivation to improve or maintain environmental quality
4. Skills to identify and help resolve environmental challenges
5. Participation in activities that lead to the resolution of environmental challenges (UNESCO, 1978).

It is recommended that an environmental education strategy for local communities is developed.

The strategy should be based on prioritised local environmental problems with the root causes in attitude, understanding and behaviour of local communities. KAP studies should precede environmental educational programs.

"KAP" study measures the Knowledge, Attitude and Practices of a community. It serves as an educational diagnosis of the community. The main purpose of this KAP study is to explore changes in Knowledge, Attitude and Practices of the community. Several guidelines are available regarding the design and implementation of KAP studies.

The involvement of local stakeholders will be important in order to support educational efforts due to lack of human resource capacity of the Environmental Management Department.

15. Strategic requirements for key infrastructure, having implications for the capital budget

Based on the status quo analysis and the EMS, the following financial requirements have to be included in the budget for the future:

Table 15: Budget requirements for the IEMP

Item	Approximate cost	Responsible department
External auditing of water use licenses (x5: WWTW's)	R 60 000 per audit = R 300 000	Water and Sanitation
Landfill closure/rehabilitation	R 120 000 for an environmental impact assessment per landfill (X7)	Waste Management
Implementation of a ground water monitoring regime at all landfill sites	R500 000 per landfill site	Waste Management
Environmental training and awareness	R 100 000 for training material development and course development	Environmental Management
Development of sectoral strategies	R 150 000 per strategy	Environmental Management

Item	Approximate cost	Responsible department
Storm water diversion channels at Hermanus waste water treatment works	R1 000 000	Water and Sanitation
EMP for the Onrus estuary	R 180 000	Environmental Management
Additional personnel for the EM Section	To be determined based on number and salary scale of additional personnel	Environmental Management
Classification of sludge at all WWTW	R 35 000 per WWTW	Water and Sanitation
Telemetric systems at sewer pump stations to limit environmental pollution in the event of overflows	To be determined	Water and Sanitation
Storm water diversion channel at the Hermanus closed landfill site	R 1 500 000	Waste Management
Bund walls around skips receiving grit and screenings at WWTWs	R 200 000	Water and Sanitation
Waste storage area for used oil and other hazardous waste at mechanical workshops (e.g. Hermanus)	R 200 000	Operational Management
Construction of washing bays for waste trucks (as well as all municipal vehicles)	R 350 000	Operational Management
Installation of oil separators at mechanical workshop to prevent oil pollution of storm water run-off	R 500 000	Operational Management
Sludge storage facilities at the Preekstoel water treatment works	R 500 000	Water and Sanitation
Bunding for aluminium sulphate tanks at the Franskraal WWTW	R 100 000	Water and Sanitation
Rehabilitation of erosion at the Kleinmond WWTW	R 200 000	Water and Sanitation