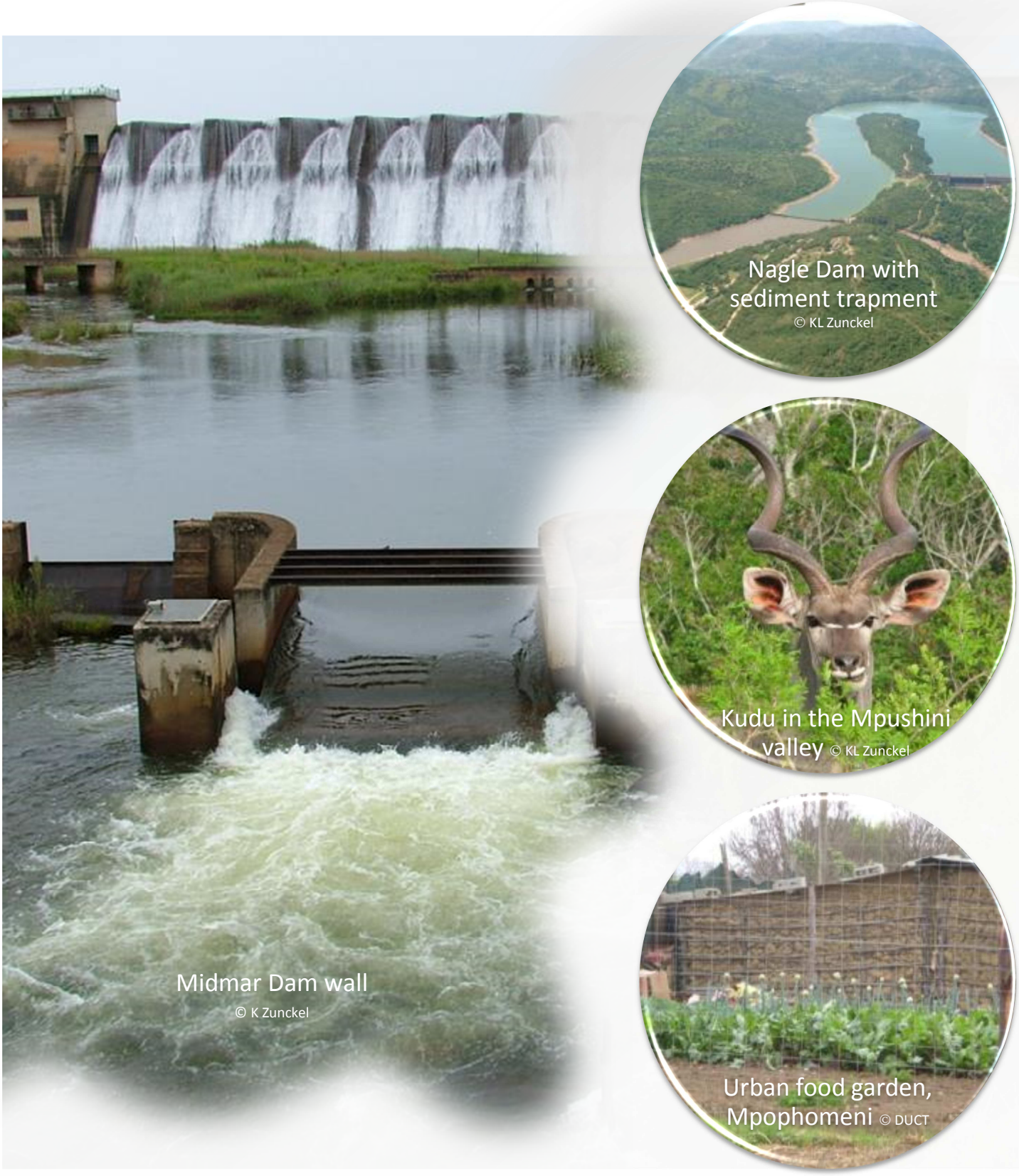

uMgungundlovu District Municipality Strategic Environmental Assessment and Strategic Environmental Management Plan

SEMP REPORT

September 2013

uMgungundlovu District Municipality Strategic Environmental Assessment and Strategic Environmental Management Plan – SEMP REPORT

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September 2013

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uMgungundlovu SEMP Report

1 INTRODUCTION

1.1 Background

The uMgungundlovu District Municipality (UMDM) has recognised the need for the development of a Strategic Environmental Assessment (SEA) and a Strategic Environmental Management Plan (SEMP) in a bid to provide a pro-active tool that will guide decision-making within the District from an environmental management perspective. In order to achieve this goal Isikhungusethu Environmental Services, in association with Zunckel Ecological + Environmental Services, were appointed to undertake the work. The first step in the process was to assess the current state of the environment and to this end a number of specialist studies were undertaken and the outcomes were captured in a Status Quo Report. These outcomes were supported by ground truthing to ensure that the Status Quo Report was an accurate reflection of the conditions on the ground. In addition to this, role players and stakeholders were given the opportunity to review draft copies of the report and their inputs were integrated where possible.

An important aspect of the Status Quo process was the availability of a parallel study commissioned by Ezemvelo KZN Wildlife and carried out by GroundTruth: Water, Wetlands and Environmental Engineering; that produced a Biodiversity Sector Plan for the District. While this product provided substantiation for much of the biophysical findings captured in the Status Quo Report, it has also provided a robust foundation for the development of the spatial component and guidelines for the SEA.

On the basis of the findings as reflected in the Status Quo Report, the collective expertise of the project team, and consultation with key role players and stakeholders; an indication of a desired state of the environment was captured in the form of a Sustainability Framework. The framework sets a vision for the UMDM and a series of sustainability objectives which would address the environmental concerns or issues that were identified during the specialist studies and Status Quo phase, and guide the District and its strategic partners towards the achievement of the desired state of the environment. Each of the objectives was further refined through the setting of sustainability criteria and the identification of indicators and targets that would assist with measuring progress made towards the achievement of the objectives.

An important component of this work was the capturing of this information spatially on maps at an appropriate scale and in GIS format. The latter is of particular importance for the District to use on an on-going basis and on which to build and improve as additional information is obtained. The maps that were produced are attached to the SEA Report in a separate Map Book and depict the various categories of biodiversity and ecological importance as specified by the Biodiversity Sector Plan already mentioned above. The focus of the SEA Report is on these environmental control zones and the provision of guidelines that lists activities that are either appropriate or inappropriate for each zone. In this way, the District and its strategic partners are equipped with a tool which they can use to screen development applications and substantiate related decisions, while progressively introducing sustainability as an overarching development principle for the District.

While the Status Quo looks at the present situation and the SEA forecasts a long-term vision of up to 30 years, the SEMP provides very specific and detailed action plans aimed at addressing the most pressing environmental management issues that will ensure that there is positive movement towards the long-term vision. The time frame used for the SEMP is five years starting with the adoption of the SEMP by the UMDM Council.

1.2 The SEMP Compilation Process

1.2.1 Context and Framework

The point of departure for the SEMP was the Sustainability Framework as captured in the SEA Report. On the basis of this framework a series of action planning templates were drawn up to accommodate a series of actions for each of the Sustainability Strategies listed under each of the Sustainability Objectives listed under each Strategic Priority. This hierarchy of management statements was derived from the National Strategy for Sustainable Development (NSSD1) as compiled by the National Dept. of Environment Affairs (DEA, 2011). The NSSD1 has as its vision the following:

South Africa aspires to be a sustainable, economically prosperous and self-reliant nation state that safeguards its democracy by meeting the fundamental human needs of its people, by managing its limited ecological resources responsibly for current and future generations, and by advancing efficient and effective integrated planning and governance through national, regional and global collaboration.

And this is broken down into the following goals:

- Develop and promote new social and economic goals based on ecological sustainability and build a culture that recognises that socioeconomic systems are dependent on and embedded in ecosystems;
- Increase awareness and understanding of the value of ecosystem services to human wellbeing;
- Ensure effective integration of sustainability principles into all policies, planning and decision-making at national, provincial and local levels;
- Ensure effective system-wide integration and collaboration across all functions and sectors; and
- Monitor, evaluate and report performance and progress in respect of ecological sustainability in relation to socioeconomic goals

From which the following five Strategic Priorities were derived:

- Enhancing systems for integrated planning and implementation;
- Sustaining our ecosystems and using natural resources efficiently;
- Towards a green economy;
- Building sustainable communities; and
- Responding effectively to climate change

On the basis of the process followed in the SEA a vision was derived for the UMDM as follows:

It is the vision of the UMDM and its Strategic Partners that by 2040 the District will be recognised as one within which sustainability is at the core of all planning and decision-making thus ensuring that its natural capital is restored and managed so as to optimally contribute to the wellbeing of its people and the resilience of the economy.

While this vision is worded differently and specifically for the UMDM, it is compatible with the NSSD1 vision. The next step in the process was to derive Sustainability Objectives for each of the NSSD1 Strategic Priorities, followed by Sustainability Strategies for each Objective. Each of these steps produced statements which helped to guide thinking towards the identification of specific actions that together would work towards the achievement of each of the subsequent strategic statements. In recognition of the fact that each of the strategic statements in themselves are too broad to guide specific implementation and action, it was necessary to refine these to a level of detail that indicates:

- Exactly what action/s are required to achieve each Sustainability Strategy;
- Who will be responsible and could be held accountable for implementation of the action;
- Who would be required to work in collaboration with the responsible individual;
- What resources would be required;
- By when should the action be completed or how frequently should it be repeated; and
- What would the indicator of success be?

1.2.2 The Steps Followed to Compile the SEMP

The compilation process of the SEMP followed the principle that the primary inputs would come from the relevant officials of the UMDM and their strategic partners, with the professional service providers facilitating the process and collating the various inputs into the SEMP. This approach was followed to ensure that the inputs provided to compile the SEMP would be absolutely relevant to each of the participating government agencies and reflect their legal mandates and policies, while also taking cognisance of existing initiatives, i.e. to avoid unnecessary duplication. In addition to this it is hoped that this process will also help to achieve buy-in and ownership for the SEMP by those responsible for its implementation.

In order to achieve the above a series of SEMP workshops were scheduled with officials from the UMDM and its strategic partners, specifically targeted for the contribution they could make. Preceding this though was a workshop with the Project Steering Committee where the Sustainability Strategies for each Strategic Priorities were reviewed, rationalised and prioritised in terms of implementation urgency given the five year time frame of the SEMP. For this reason the SEMP does not exactly reflect the Sustainability Strategies that are captured in the Sustainability Framework in the SEA. Further rationalisation took place as the Sustainability Strategies were unpacked into the necessary actions and it was possible to recognise where aspects had already been covered elsewhere in the SEMP.

With a view to streamline the workshops Strategic Priorities 1 and 4, and 3 and 5 were combined; while Strategic Priority 2 was recognised as being complex enough to cover on its own. The officials who were invited to participate in the workshops are listed per Strategic Priority in Table 1.

Table 1: The UMDM and Strategic Partner officials who were invited to and participated in the SEMP workshops

TASK TEAM MEMBERS	GOVERNMENT AGENCY REPRESENTED
STRATEGIC PRIORITY 1 AND 4: ENHANCING SYSTEMS FOR INTEGRATED PLANNING AND IMPLEMENTATION, AND BUILDING SUSTAINABLE COMMUNITIES	
Nosipho Ntanzi	UMDM
Mandisa Khomo	UMDM
Ian Felton	DAEA
Kim van Heeden	DAEA
Khulekani Zulu	Impendle LM
Jan van der Vegte	Umgeni LM
Ashley Hay	uMshwathi LM
Elaine Donaldson	Mkhambathini LM
Bongiwe Mchunu	Mpofana LM
James Sithole	Richmond LM
Larry Saunders	CoGTA
Kiko McBrown	CoGTA
Alka Ramnath	Umgeni Water
Annie van der Venter	Amafa
Martie Milne	DHS
STRATEGIC PRIORITY 2: SUSTAINING OUR ECOSYSTEMS AND USING NATURAL RESOURCES EFFICIENTLY	
Boyd Escott	EKZNW
Rodney Bartholomew	Msunduzi LM
Felicity Elliott	EKZNW
Manisha Thakurdin	DWA
Felicity Mitchell	DAEA
Brenden Sivparsad	Msunduzi LM
Steve Gillham	Umgeni Water
Steve Terry	Umgeni Water
Bheki Mbambo	UMDM
Alka Ramnath	Umgeni Water
Shumendree Govender	DWA
STRATEGIC PRIORITY 3 AND 5: TOWARDS A GREEN ECONOMY AND RESPONDING EFFECTIVELY TO CLIMATE CHANGE	
Riaz Jogiat	UMDM
Ryan Brudvig	DEA WfW
Debbie Jewitt	EKZNW
Nisaar Mahommed	TIKZN
Liesel Beires	DEDT
Pravitha Jairam	DWA
Joe Phadima	EKZNW
Michael Braack	DAEA
Timothy Fasheun	DAEA
Ntokozo Ngubo	DAEA
Jay Puckree	DAEA
Nokuthula Mthembu	UMDM
Brenden Rajoo	UMDM

It must be noted that it proved a challenge to find dates that suited most officials and in many instances there were those who were not able to attend the workshops. While this reality did make the process of completing the SEMP action planning templates a difficult task, all stakeholders were provided with the opportunity of reviewing and commenting on a series of draft SEMP reports. All inputs received during the latter, and particularly the workshops, are acknowledged with appreciation.

At each of the SEMP workshops the professional service provider assisted the attending officials to work systematically through the Sustainability Strategies to derive the series of actions necessary for their achievement. Having facilitated each of the workshops, the professional service provider was able to provide feedback from the other workshops in terms of the linkages between the five Strategic Priorities and thus avoid duplications. He was also able to stimulate and guide the discussions while capturing the inputs provided directly into the action planning templates. This process was screened at all times during the discussions so that the participants were able to view exactly what was being captured, which ensured that they kept track of the process while also ensuring the accuracy of the entries.

1.3 How to use the SEMP

The actions that have been captured under Strategic Priority 1: "Enhancing Systems for Integrated Planning and Implementation" set out the process for the establishment of the necessary institutional arrangements and processes for implementation of the SEMP. These processes will need to be put in place as soon as the SEMP has been adopted by the UMDM Council. Thereafter the SEMP will need to be used by the structure/s that is established to track progress with implementation. It is iterated that the SEMP has a five year time frame for implementation and as such reflects only those actions that have been viewed as priority for this first iteration. Thereafter the SEMP will require revision which reflects on the effectiveness of implementation and sets out a new series of actions for the next five year iteration.

To further assist with implementation there are aspects of the SEMP action planning template that need explanation and these are discussed below in the order that they appear in the temple.

1.3.1 Actions

The actions that were identified for each of the Sustainability Strategies were derived through the workshop processes described in Section 1.2.2 above and the numbers of actions listed per Sustainability Strategy reflect the complexity of the latter. Some required few actions while others have a series, of which some can take place concurrently while others need to follow sequentially. The timeframes listed per each action provide the necessary guidance in this regard.

1.3.2 Responsible Individual

The two aspects relevant to this aspect are that designations were used as opposed to names in order to ensure continuity when individuals within the positions move on. Secondly it was deemed necessary to list a specific official designation responsible for implementation to facilitated the tracking of implementation as well as ensure accountability.

1.3.3 In Collaboration With…

In most instances the Responsible Individual needs to implement the relevant action in collaboration with a number of other officials, either within their own agency and/or with other strategic partners. This reflects either a functional or geographic differentiation in areas of responsibility or jurisdiction.

1.3.4 Resource Requirements

The multi-stakeholder nature of the SEMP made it very difficult to provide entries of any meaning for this aspect and mostly these have been limited to "to be determined". It is recommended that these entries be included once implementation of the SEMP begins and the collaborative governance structure/s is in place to facilitate implementation. Such entries facilitate the process of establishing the financial, human and other resource requirements necessary for successful implementation. In completing these entries it is essential to remember that a balance is required between available resources and those that are required additionally. By being cognisant of the former one ensures that the SEMP is achievable, but by including the latter one is able to use the SEMP to justifiably call for additional resources.

It must be noted that in almost all instances a shortage of resources was recognised and these shortages will need to be addressed with urgency if the SEMP is to be successfully implemented and any move towards sustainability is to be seen in the UMDM.

1.3.5 Timing or Time Frame

This has already been discussed in the introduction to this Section.

1.3.6 Indicator of Success

This aspect is to be used in conjunction with the Responsible Individual to aid in the tracking and monitoring and evaluation of implementation. It records the desired outcome of each of the actions and can be used to assist with implementation as it provides a clear indication of what needs to be achieved. When these aspects are considered collectively they should all contribute to the achievement of each of their Sustainability Strategies.

2 The SEMP Action Plans

The action plans for the SEMP are captured below in a series of action planning templates for each of the five Strategic Priorities that relate to the NSSD1 and the Sustainability Framework of the SEA. Again the work of the various task teams is acknowledged and it is recognised that the professional service provider's inputs were limited to the facilitation of the action planning workshops and the collation of these inputs into this report.

For the sake of brevity acronyms have been used to denote responsible individuals and partners in the action tables. A list of these acronyms and their meanings is provided in Section

2.1 Strategic Priority 1: Enhancing Systems for Integrated Planning and Implementation

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
STRATEGIC PRIORITY 1: ENHANCING SYSTEMS FOR INTEGRATED PLANNING AND IMPLEMENTATION					
Sustainability Objective: 1.1 Enhanced and effective environmental governance, institutional structures and systems to achieve integrated planning and implementation.					
Sustainability Strategy: 1.1.1 Establish effective co-operative environmental governance structures and institutional mechanisms between key environmental authorities.					
UMDM Planning and Development Cluster to have ToR and membership reviewed in the light of the SEA and SEMP and in accordance with the Inter-Governmental Framework Act.	Chairperson of Planning & Development cluster	Cluster members plus other environmental and development agencies, e.g. Umgeni Water, DWA, DAEA, CoGTA.	Internal	Within three months	Reviewed ToR and membership
Establishment of the uMgungundlovu Environmental Forum to facilitate authority and civil society consultation, participation and collaboration	Municipal Manager: UMDM	Relevant authorities responsible for environmental management in the uMgungundlovu District, e.g. DWA, DAEA, UMDM, local municipalities, EKZNW, DAFF etc. Civil society stakeholders _ Local NGO's, CBO's, community forum representatives etc.	Internal	Within three months	uMgungundlovu Environmental Forum Meetings every quarter
Sustainability Strategy: 1.1.2 Integrate the sustainability criteria and environmental sensitivity information of the SEA into all municipal planning and develop a sustainability appraisal tool to be used for the evaluation of Policies, Plans and Projects.					
Launch the SEA and SEMP	Executive Manager Community Services UMDM	Planning and Development Cluster	Internal	Six months	Launch completed, good media coverage
Develop an implementation guideline for the interpretation and integration of the SEA products into land use	Environmental Management Specialist	UMDM Planning and Development Cluster DAEA; EKZNW; CoGTA	Internal	Within six months of appointment	Guidelines and toolkit available.

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
planning, including an electronic guidelines and toolkit.					
Make SEA GIS information readily available	UMDM and Shared Services GIS units		Internal	On-going	SEA GIS data and implications integrated into local municipal planning
Environmental management specialist to be appointed in the UMDM	Municipal Manager UMDM	According to prescribed processes	Internal	December 2013	Suitable candidate appointed
Develop a sustainability appraisal tool for the UMDM, including all aspects covered in the SEA as well as nuisance factors such as noise and visual pollution.	DAEA	Planning and Development Cluster	Internal	April 2014	Appraisal tool developed and tested
Adoption of the sustainability appraisal tool by local municipalities	Planning & Development Cluster	DAEA and local municipalities	tbd	June 2015	Appraisal tool adopted by local municipalities
Establish need for and possibility of environmental management being a shared service	DAEA	MUNICIPAL MANAGER UMDM, DAEA, Senior manager: Strategic Planning in CoGTA	tbd	Six months	Needs analysis completed
Establish an environmental section within the UMDM	UMDM Environmental management Specialist	UMDM Air Quality, Water Quality, Solid Waste Management, DAEA	tbd	August 2014	Environmental management sector established
Make SEA guidelines readily available	Environmental management Specialist		Internal	January 2014	SEA guidelines and implications integrated into local municipal planning
Sustainability Strategy: 1.1.3 Ensure all UMDM projects comply with all relevant environmental legislation, regulations, policies and guidelines.					
Compile an annual environmental compliance audit report linked to UMDM: Performance	Environmental management Specialist	UMDM MM; Senior Manager's UMDM	Internal	June 2015 (annually)	Annual environmental compliance audit report

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Management System					
Revise and update environmental management guidelines and bylaws to incorporate nuisance factors such as noise, visible and aesthetic impacts.	Environmental management Specialist	UMDM MM; Senior Manager's UMDM	Internal	December 2014	Updated guidelines and bylaws.
Sustainability Strategy: 1.1.4 Environmental issues and priorities embedded into the Performance Management System and Key Performance Areas of all components of the District Municipality.					
Review performance management system and ensure appropriate KPAs and KPIs are included	Manager: Performance Management Systems	Heads of Dept.	tbd	Link into annual municipal management cycle (IDP, budget and PMS)	Revised performance contracts
Sustainability Strategy: 1.1.5 Build capacity in environmental compliance monitoring and enforcement through increasing the numbers of Environmental Management Inspectors.					
To be addressed under the development of the environmental management section but remains primarily a DAEA responsibility					
Signed MoA between UMDM and DAEA for the roll-out of EMI's to the Municipality	DAEA; UMDM Municipal Manager	National DEA	Internal	October 2013	Signed MoA
Municipal EMI implementation protocol and guideline developed to manage EMI functions and mandates	DAEA; UMDM Municipal Manager	National DEA	Internal	July 2014	Municipal EMI Protocol in place
Municipal officials to undertake accredited EMI training	DAEA; UMDM Municipal Manager	National DEA	National DEA, DAEA and UMDM funding (Approx. R15,000 per official)	Annually	Number of trained Municipal EMI's
Municipal EMI's Designated by MEC: DAEA	DAEA; UMDM Municipal Manager	National DEA	Internal	Annually	Number of Designated Municipal EMI's
Meet EMI capacity needs within uMgungundlovu	DAEA	National DEA and UMDM	tbd	Continual	Needs addressed
Sustainability Strategy: 1.1.6 Develop a monitoring, evaluation and reporting mechanism to facilitate continual assessment towards achieving sustainability.					
Will be addressed under 1.1.2, 1.1.4 and 1.1.7.					
Sustainability Strategy: 1.1.7 Undertake a District State of the Environment Report (SoER) every five years and use the outcomes to revise and update the SEA and SEMP.					

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Gather, store and analyse the information and data upon which the annual reports are based.	Environmental Management Specialist	UMDM components; EKZNW; DAEA; Umgeni Water etc.	tbd	Annually	Record of all data gathered and stored
Ensure that municipal annual reports include an environmental component that relates to the SEA and SEMP	MUNICIPAL MANAGER UMDM and Council	Local municipalities, DAEA, DWA, UW	tbd	Annually	Environmental component integrated into annual report inclusive of trends analyses
Ensure that environmental sustainability objectives, targets and requirements are built into the IDPs, including aspects associated with nuisance factors such as noise and visual pollution.	UMDM IDP manager and Council	Local municipalities, DAEA, DWA, UW	tbd	Annually	Environmental component integrated into IDPs inclusive of trends analyses. Signage, visual characterization and aesthetic control standards for implementation in decision making processes developed by each municipality.
Landscape Characterisation Norms and Standards for the province, once gazetted, must be used by municipalities in their planning	Environmental Management Specialist	Local municipalities, DAEA, DWA, UW, CoGTA	tbd	As soon as these have been gazetted and then annually	Landscape Characterisation Norms and Standards integrated into municipal planning.
Undertake a Municipal SoER outlook report every five years	Environmental Management Specialist	DAEA	tbd	Within six months of five year SoER	Municipal SoER every five years
Sustainability Strategy: 1.1.8 Develop and implement a sustainability awareness and environmental capacity building campaign to empower all relevant role-players, including a monitoring and evaluation survey framework linked to the SoER.					
Awareness					
Adopt and implement the Environmental Education and Action Plan	Environmental Management Specialist	Council; UMDM components; DAEA; CBO's; NGO's	tbd	Continual	Environmental Education and Action plan implemented

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Develop a sustainability awareness campaign	Environmental Management Specialist	UMDM Enviro forum (needs Business Chambers and Farmer Associations)	tbd	Immediately	Sustainability awareness campaign
Implement the awareness campaign	UMDM Enviro forum (needs Business Chambers and Farmer Associations)		tbd	Within six months of completion	Sustainability awareness campaign implemented
Develop a community evaluation survey mechanism to be used monitor changes in people's awareness and capacity in environmental sustainability	Environmental Management Specialist	Civil society sectors	Internal	July 2014	Sustainability awareness survey mechanism developed
Undertake a sustainability awareness survey in the communities of uMgungundlovu to evaluate and assess changes in the awareness of and the perception of environmental sustainability (as part of SoER)	Environmental Management Specialist	Civil society sectors	Internal	Linked to SoER	Sustainability awareness survey report as part of SoER
Capacity Development					
Determine capacity development needs within civil society and the NGO sector	UMDM Enviro Forum		tbd	As part of awareness campaign	Capacity need report including remedial actions to Council
Implementation of remedial actions	UMDM Enviro Forum		tbd	On-going	A M&E programme to report back to Council
Ensure that environmental management capacity is established within both District and Local Municipalities according to	Municipal Managers Forum	Municipal managers DAEA Shared Services Model	tbd	Immediately after adoption and then on-going	Business plan accepted by all MMs

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
the Environmental Education Policy and Action Plan annexed to this report.					
Sustainability Strategy: 1.1.9 Develop and implement strategies to promote coordinated implementation and environmental management.					
Much of what is required to achieve this strategy has been captured in others within this Strategic Priority.					
Sustainability Strategy: 1.1.10 Promote access to environmental information that is easily available to all sectors of society through various information media.					
Engage with relevant organs of state to access available environmental information and coordinate its dissemination	Environmental management specialist		tbd	Within six months of appointment	Record of information and dissemination destinations
Ensure environmental information is available on the UMDM website	Environmental management specialist	UMDM webmaster	internal	continual	Environmental information available on UMDM website regularly updated
Dissemination of information relevant to civil society	UMDM	UMDM Enviro Forum	tbd	Immediately	Record of information and dissemination destinations
Review and identify information needs and put strategies in place to fulfil these	Environmental management specialist UMDM Enviro Forum			On-going	Updated and relevant information disseminated

2.2 Strategic Priority 2: Sustaining our Ecosystems and Using Natural Resources Efficiently

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
STRATEGIC PRIORITY 2: SUSTAINING OUR ECOSYSTEMS AND USING NATURAL RESOURCES EFFICIENTLY					
Sustainability Objective: 2.1 The use of natural capital is compatible with the maintenance of ecosystem functionality and natural resources are protected and restored.					
Sustainability Strategy: 2.1.1 Develop incentives for sustainable agriculture land management practices that are within acceptable norms and standards.					
This is seen as having a medium-term priority and has therefore not been actioned for this iteration of the SEMP.					
Sustainability Strategy: 2.1.2 Implement land care and rehabilitation (including wetlands, alien species and erosion) projects aimed at green job creation and restoring land and natural resources.					
Over-arching coordination for all existing rehabilitation in the UMDM for greatest ecological, social and economic impact	UMDM Environmental Management Specialist	UEIP, National DWA, DAFF (EPWP) and DEA (NRM); Provincial DAEA, KZN DWA, EKZNW (planning and projects), DEDT, ITB; LMs; and relevant NGOs	Internal	Within six months and then on-going	Adoption and implementation of the over-arching plan
Undertake a condition assessment of all untransformed land and identify and map: a) that which has not past the relevant threshold of potential concern and requires sustainable management to maintain it as such; and b) degraded land that requires rehabilitation	UMDM Environmental Management Specialist	LMs, EKZNW (DCOs), DAEA (Agric.)	Internal	Within 12 months	Condition assessment and related maps at a LM scale.
Utilise the condition assessment to derive an over-arching land management and rehabilitation plan for the UMDM	UMDM Environmental Management Specialist	KZN Planning commission (PGDS), UEIP, National DWA, DAFF (EPWP) and DEA (NRM); Provincial DAEA, KZN DWA, EKZNW (planning and projects), DEDT, ITB; LMs	Internal	Within 18 months	Over-arching land management and rehabilitation plan for the UMDM at LM scale
Interrogate the over-arching plan to extract priorities for	UMDM Environmental Management Specialist	KZN Planning commission (PGDS), UEIP, National DWA,	Internal	Within 24 months	Land management and rehabilitation strategy

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
implementation within the time frame of the SEMP		DAFF (EPWP) and DEA (NRM); Provincial DAEA, KZN DWA, EKZNW (planning and projects), DEDT, ITB; LMs			
Derive and implement an M&E strategy to track implementation of the land management and rehabilitation plan	UMDM Environmental Management Specialist	KZN Planning commission (PGDS), UEIP, National DWA, DAFF (EPWP) and DEA (NRM); Provincial DAEA, KZN DWA, EKZNW (planning and projects), DEDT, ITB; LMs	Internal	Within 24 months and on-going	M&E reports/management and degradation components
Establish a project management unit to secure funding and ensure Implementation of prioritised projects	UMDM Environmental Management Specialist	KZN Planning commission (PGDS), UEIP, National DWA, DAFF (EPWP) and DEA (NRM); Provincial DAEA, KZN DWA, EKZNW (planning and projects), DEDT, ITB; LMs	tbd	Within six months and then on-going	Existence of the unit and sufficient resources are leveraged
Ensure that land rehabilitation is integrated into the development application process	Local government review officials (e.g. environmental officials and/or planners)	Other relevant organs of state and NGOs, e.g. EKZNW, DAEA, DWA, DUCT, Conservancies, etc.	Internal	Immediately	100% compliance with rehabilitation requirements in development application approvals
All offsets that are conditions of establishment are to be integrated into local government planning mechanisms, are zoned accordingly and budget is secured for the rehabilitation and management thereof	Local government review officials (e.g. environmental officials and/or planners)	Other relevant organs of state and NGOs, e.g. EKZNW, DAEA, DWA, DUCT, Conservancies, etc.	Internal	Immediately	100% compliance with rehabilitation requirements in development application approvals
Sustainability Strategy: 2.1.3 Develop and implement a community based natural resource management strategy.					
Engage DAEA Agric. extension in terms of building capacity and understanding related to	UMDM Environmental Management Specialist	DAEA (Agricultural extension), EKZNW (Eco-Advice), ITB	Internal	Within 3 months and on-going	SEA integrated into Extension Officers training materials, targeted extension strategies and

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
sustainable agriculture in harmony with the SEA					implementation plans
Engage with the WESSA Eco-schools Programme	UMDM Environmental Management Specialist	WESSA	Internal	Within 6 months and on-going	SEA integrated into Eco-Schools strategies and implementation plans
Promote supplementary production of biodiversity resources (species specific)	EKZNW Resource Ecologists, Social Ecologists	Council of Traditional Leaders, Traditional Healers, EKZNW DCOs, ITB	Internal	Within 9 months and on-going	The number of successful augmentation projects in place
Derive and implement research to better understand the link between livelihoods, culture and natural resource use	EKZNW Resource Ecologists, Social Ecologists	Council of Traditional Leaders, Traditional Healers, UKZN, ITB	tbd	Within 12 months	Well-resourced research project
Derive an over-arching CBNRM strategy by pulling together the preceding actions and identifying and addressing any other additional relevant issues	UMDM Environmental Management Specialist	EKZNW Resource and Social Ecologists, Council of Traditional Leaders, ITB, Traditional Healers,	tbd	Within 24 months	CBNRM strategy
Sustainability Strategy: 2.1.4 Implement a protected area expansion strategy to create a network of protected areas representative of the District's biodiversity.					
Utilise the outcome of the condition assessment from 2.1.2 to revise the UMDM Biodiversity Sector Plan and PA expansion strategy to derive one specific to the UMDM for a 20 year period	EKZNW Biodiversity Spatial Planning and Information	UMDM Environmental Officer	Internal	Within 5 years beginning from 2014.	UMDM PA expansion strategy
Ensure that the expansion priorities extracted from the 20 year PA expansion strategy for the UMDM are used to inform the spatial planning for the District and	UMDM Environmental Management Specialist	EKZNW PA Expansion and Stewardship	tbd	On-going after completion of the above	Additional PA footprint

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
the Locals					
Ensure that the DAEA and other related officials are familiar with the KZN PA expansion strategy and the UMDM Biodiversity Sector Plan, and direct offset options towards addressing these priorities	Local government review officials (e.g. environmental officials and/or planners)	EKZNW IEM planners, DAEA	Internal	On-going after completion of the above	Additional PA footprint
Refined local level conservation plans to inform the KZN Biodiversity Plan.	Environmental officials at the local level	EKZNW	Internal	On-going	Updated KZN Biodiversity Plan
Sustainability Strategy: 2.1.5 Strengthen the Biodiversity Stewardship programmes.					
This is seen as a tool that will be used under 2.1.4.					
Sustainability Strategy: 2.1.7 Communicate all spatial products to relevant stakeholders such as Estate Agents and ensure that same is freely available in easy access formats.					
Covered under 1.1.10.					

Sustainability Objective: 2.2 The ability of aquatic resources to provide water is maintained within the limits of sustainability.					
Sustainability Strategy: 2.2.1 The restoration and sustainable management of water catchments.					
This aspect has been covered to a large extent under 2.1.2 but it will be necessary to be aware of possible gaps and opportunities that will need to addressed in addition.					
Sustainability Strategy: 2.2.2 Policies and measures implemented to significantly reduce levels of water consumption and demand through water use efficiencies.					
Develop UMDM policy on water consumption reduction, water wastage reductioibn and demand management	UMDM: Water and Sanitation head	Umgeni Water; Local Municipalities	tbd	Within 12 Months	UMDM Policy on water consumption and Demand Management
Implement action plans identified in the UMDM Policy on water consumption and Demand Management	UMDM: Water and Sanitation head	Umgeni Water; Local Municipalities	tbd	Continual	UMDM Policy on water consumption and Demand Management
Sustainability Strategy: 2.2.3 Determination and maintenance of the ecological reserve for key rivers.					
There are processes in place at the moment such as the DWA commissioned study into the classification and reserve determination for rivers within the Mvoti to Umzimkhulu Water					

Management Area. Therefore the UMDM need not have specific actions related to this, but acknowledge that relevant Strategic Partners should be involved.
Sustainability Strategy: 2.2.4 Coordinate and integrate strategies and programmes to ensure sustained implementation of alien plant control and rehabilitation.
Covered in 2.1.2
Sustainability Strategy: 2.2.5 Coordinate and integrate strategies and programmes for wetland and riparian area rehabilitation.
Covered in 2.1.2
Sustainability Strategy: 2.2.6 Develop and implement a water loss and wastage management plan.
Covered in 2.2.2.
Sustainability Strategy: 2.2.7 Develop policies and strategies for the more efficient and effective management of farm dams and irrigation systems.
Covered in 2.2.2.

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Sustainability Objective: 2.3 Water quality in all aquatic ecosystems in the District is significantly improved and maintained.					
Sustainability Strategy: 2.3.1 Develop and implement a scheduled maintenance and upgrade programme of all sewerage infrastructure and wastewater treatment works.					
Covered under 4.1.2.					
Sustainability Strategy: 2.3.2 Develop a water pollution emergency response protocol.					
Establish and maintain the Technical committee on water resource protection	MUNICIPAL MANAGER UMDM	DWA Operations Regional Manager Inland for Umgeni Water MLM (WSA) DAEA EKZNW SANBI	Internal	Immediately and on-going	Technical committee established and effective in achieving cooperation around the management of water quality issues.
Establish linkages with NGOs and CBOs involved in water resource monitoring and management and develop a protocol for members of the public to report pollution incidents.	DWA	UMDM Operations Regional Manager Inland for Umgeni Water MLM (WSA) DAEA EKZNW SANBI DWA	Internal	Within 3 months and on-going	Linkages and protocols for rapid response and efficient management of all pollution incidents.
Maintain linkages with the N3 disaster management system	DWA	UMDM and MLM Fire and Emergency RTI DAEA (Regional Rep)	Internal	On-going and as per existing disaster response protocol	Good cooperation and impacts of disasters are contained as efficiently as possible including prevention of impact on major water resources.
Develop and maintain linkage with Spoornet for dealing with spillages through the District.	DWA	Spoornet Response Unit	Internal	Within 3 months and on-going	Good cooperation and impacts of disasters are contained as efficiently as possible including prevention of impact on major water resources.

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Develop and maintain linkages with Transnet Multi-product pipeline	DWA	Transnet Response Unit	Internal	Within 3 months and on-going	Good cooperation and impacts of disasters are contained as efficiently as possible including prevention of impact on major water resources.
Develop, implement and maintain a water pollution response protocol for the agricultural sector	DAEA	Water User Associations KWANALU EKZNW DWA	Internal	Within 6 months and on-going	Water pollution incidents associated with agriculture are rapidly detected and efficiently dealt with.
Develop, implement and maintain a water pollution response protocol for the industrial sector	uMngeni Local Municipality (ULM) Msunduzi Local Municipality (MLM) UMDM	Pietermaritzburg Chamber of Business, EKZNW, DWA and DAEA	Internal	Within 6 months and on-going	Water pollution incidents associated with industry are rapidly detected and efficiently dealt with.
Sustainability Strategy: 2.3.3 Develop an integrated water quality and river health monitoring and evaluation system.					
Compile an inventory and assess all existing monitoring and evaluation work within the UMDM	DWA	UW, UMDM, DWA, MLM, DAEA, DUCT and WESSA	Internal	Within 6 months	As comprehensive as possible/ complete as possible inventory
Identify gaps and put processes in place to secure the resources necessary to fill the gaps	DWA	UW, UMDM, DWA, MLM, DUCT, DAEA, WESSA and EKZNW	Internal	Within 3 months of the above	All gaps identified and processes to secure resources
Coordinate the evaluation of the data and ensure feedback of results and recommendations to relevant agencies	DWA	UMDM, DWA, MLM and UW	Internal	Within 6 months of the above and then on-going (quarterly)	Identification and implementation of projects aimed at dealing with specific sources of water quality issues (both point and non-point)
Formulate and coordinate the implementation of a comprehensive monitoring	DWA	UW, UMDM, DWA, MLM, DUCT, DAEA, WESSA and EKZNW	Internal	Within 9 months	Incremental improvements in water quality and river health throughout the

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
and evaluation protocol/s including relevant indices.					system with river classifications improving by at least one class.
Sustainability Strategy: 2.3.4 Develop an incentive scheme designed to improve water quality.					
An incentive scheme will be developed in further iteration of the SEMP					
Sustainability Strategy: 2.3.5 Integrate the costs of restoration and sustainable management of catchments into the water reconciliation and pricing strategy.					
An sustainability led water reconciliation and pricing strategy will be developed in further iteration of the SEMP					
Sustainability Strategy: 2.3.6 Ensure adequate resources and capacity for the compliance monitoring and enforcement of relevant water legislation.					
Review and develop appropriate By-Laws for the management of waste water and sewer disposal	Local Municipalities/UMDM	DWA	tbd	Within 12 months	Updated waste water By-Laws developed for each local municipality
Undertake Municipal capacity assessment of Sewer Compliance Inspectors and associated resources	Local Municipalities/UMDM		tbd	Within 12 months	Updated waste water By-Laws developed for each local municipality
Implement remedial measures to address capacity and resource constraints	Local Municipalities/UMDM		tbd	Within 12 months	Updated waste water By-Laws developed for each local municipality
Sustainability Strategy: 2.3.7 Develop policies for improved /efficient technologies at the points of waste generation and effluent treatment in order to reduce impacts.					
Develop policies and standards for the establishment of efficient waste water treatment for all developments	UMDM; Umgeni Water	DWA	tbd	Within 12 months	Policy and Standard for Waste Water Treatment
Sustainability Strategy: 2.3.8 Implement and ensure compliance with an integrated waste discharge-charge system.					
The implementation of the waste discharge-charge system will be developed in further iteration of the SEMP					

2.3 Strategic Priority 3: Towards a Green Economy

Actions	Responsible individual (who)	Collaborators (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
STRATEGIC PRIORITY 3: TOWARDS A GREEN ECONOMY					
Sustainability Objective: 3.1 Economic goals based on ecological sustainability and built on a culture that recognises that socio-economic systems are dependent on and embedded in ecosystems.					
Sustainability Strategy: 3.1.1 Develop and implement a green economy strategy and programmes for the District.					
Research what areas of the green economy the district has its strengths in.	UMDM	DEDT, DAEA, CoGTA, PUBLIC WORKS and CLIMATE COUNCIL	Scope the study and its outputs and district municipality can budget accordingly	6months-1 year study. Implementation monitored quarterly	Number of projects/programmes outlined in the strategy that have been implemented
Determine baselines and set targets for interventions	UMDM	DEDT, DAEA, CoGTA, PUBLIC WORKS and CLIMATE COUNCIL	tbd	Within 3 months of the above	Baselines and targets
Create a community of innovation/stakeholders who will drive the strategy and its implementation	District municipality (can already link up here with existing forums such as the PGDP stakeholders, provincial Renewable Energy Workgroup, National SIP 8 workgroups, and the UMDM Environmental Forum	DEDT, DAEA, CoGTA, Business/Chambers, NGO's and CLIMATE COUNCIL	tbd	Within 3 months of the above and on-going	Strong linkages to relevant forums
Select and implement key pilot projects to showcase the strategy	UMDM	DEDT, DAEA and CoGTA	Can apply to Green Economy Technical Assistance Fund for some of these projects	Within 3 months of the above	Pilot projects selected and implemented
Sustainability Strategy: 3.1.2 Implement skills development in the green economy sector.					
Link in with the current Provincial Human Resource Development strategy and workgroup that has been set up for the province, one area would be the green economy skills	Office of the premier	Department of Higher Education and DEDT	Internal	Within 6 months	Green economy skills development for relevant UMDM officials
Link in with the proposed	DEDT	UMDM	tbd	Within 6 months	Link with renewable energy

Actions	Responsible individual (who)	Collaborators (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
renewable energy hub proposed for the province, will have a DUT campus purely focused on renewable energy manufacturing and relating industries		Ethekwini Ilembe			hub
Link it to be part of the green economy strategy to identify what the skills gaps will be in the district and how you could incorporate this into outputs of the strategy	UMDM	DEDT GIZ	Internal GIZ budget	Within 6 months	Green economy skill gaps identified
Sustainability Strategy: 3.1.3 Develop incentives for the production of environmentally friendly products.					
Link in with and adopt the Green Procurement Policy for Government (this is a project that is being worked on provincially with treasury)	UMDM	DEDT, TIKZN, DAEA and PMB Chamber of Business	Mostly lobbying work, no budgets as such	Within 6 months and then on-going	Policy approval and implementation
Develop and implement monitoring protocols to track the effectiveness of the incentives.	UMDM	DEDT, TIKZN, DAEA and PMB Chamber of Business	tbd	On-going	M&E data
Sustainability Strategy: 3.1.4 Establish investment incentives to support and promote green industries and developments in the District.					
Engage with Provincial SEZ and Industrial Economic Hubs study and process (this is looking into the development of incentives)	UMDM	DEDT TIKZN	tbd	Within 6 months	Formal linkage with incentive development process
Identify and supply zoned land for green economy activity	UMDM	DAEA Planning	tbd	Within 12 months	Green Economy zoned land
Sustainability Strategy: 3.1.5 Create opportunities for training and job creation in green economy programmes (carbon sequestration; rehabilitation of degraded areas; alien invasive species management; waste management & recycling; and, urban greening).					
Engage with the provincial Waste Economy Strategy and	UMDM Waste Management	DEDT TIKZN	Municipal budget and can apply to Green Economy	Immediately	Best practice waste management implemented in

Actions	Responsible individual (who)	Collaborators (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
implementation plan (provincial project DEDT is developing requires each municipality to have accurate information on their waste streams, where the opportunities are and what technology/recycling methods they should be implementing)			Technical Assistance Fund		the UMDM
Link in with DAEA's programme around alien invasive plants, have business plans etc. around job creation, by products etc.	UMDM	DAEA	Tbd Can also access funding from Working for Water and EPWP	Immediately	Coordinated IAP management projects
Develop and implement a strategy for empowerment and capacity building	DEDT	DAEA CoGTA	Internal	Once off	Resource material and number of outreach programmes
Sustainability Strategy: 3.1.6 Promote self-sufficiency, food security and sustainable livelihoods.					
Develop and implement a strategy	DAEA	DEDT and ADA	Internal	Within 12 months	Strategy developed and implementation initiated.

2.4 Strategic Priority 4: Building Sustainable Communities

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
STRATEGIC PRIORITY 4: BUILDING SUSTAINABLE COMMUNITIES					
Sustainability Objective: 4.1 Environmentally sustainable communities are established where development is informed by social needs and the improvement of the quality of life and does not compromise the natural environment and cultural heritage.					
Sustainability Strategy: 4.1.1 Fast-track the equitable and universal access to acceptable standards of basic services.					
It is recognised that service delivery is in hand by virtue of the Local Municipal IDPs and the UMDM will use the SEA and SEMP to influence the way in which these services are delivered within the context of integrating sustainability into these processes. This needs to influence design specifications for all related infrastructure. This aspect will be implemented through Strategic Priority 1, Sustainability Strategy: 1.1.2.					
Sustainability Strategy: 4.1.2 Undertake municipal infrastructure capacity and status assessments and implement upgrade and maintenance interventions to ensure the provision of sustainable services.					
Undertake an analysis of high risk / vulnerable areas ito of infrastructure condition/capacity, and develop and implement action plans to ensure proprieties are addressed. This needs to include projected demands linked to relevant strategic and sectoral plans.	District Technical cluster UMDM Technical Services (Executive manager: Technical Services)	Bulk water -UW Water and sanitation – UW, UMDM and MLM Power – ESKOM, MLM Solid waste – UMDM and LMs Cemeteries – UMDM and LMs Roads and Storm water – DoT, UMDM and LMs DWA DAEA CoGTA Human Settlement		Within the next IDP review cycle and on-going thereafter	Risk analysis complete, action plans in place and being implemented.
Attend and actively engage with the Integrated Development Planning Forum.	Municipal Manager UMDM	Dept. of Human Settlement: Manager for integrated Development Planning and Regional Manager: Inland Region	Internal	Quarterly	Sustainability considerations integrated into all human settlement projects in the District

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Attend and actively engage with the uMgungundlovu Technical Forum on Inter-governmental Relations	Municipal Manager UMDM	Dept. of Human Settlement: Manager for integrated Development Planning and Regional Manager: Inland Region	Internal	Quarterly	Sustainability considerations integrated into all human settlement projects in the District
Sustainability Strategy: 4.1.3 Undertake environmental vulnerability assessment to identify communities at risk and develop appropriate strategies to minimise risks and promote human well-being.					
Coordinated analysis and refinement of vulnerabilities and localisation of provincial growth and development plan	Planning and Development Cluster	District and Local IDP managers	Budget necessary to appoint relevant specialists to augment IDP management capacity	Next IDP review and subsequent reviews	Vulnerability assessments included in IDPs together with risk reduction strategies
Sustainability Strategy: 4.1.4 Green design policies and standards are developed for spatial planning and developments in order to promote environmental efficiency and minimise use of resources.					
Formulation of norms and standards on green design through the PDA	Senior Manager Land use Planning in CoGTA	Provincial Planner's Forum PDA Forum		Initiate the process immediately	Adoption of norms and standards.
Educating and creating awareness of the norms and standards within civil society	Senior Manager Land use Planning in CoGTA	Provincial Planner's Forum PDA Forum		As soon as the norms and standards have been adopted	Implementation of norms and standards.
Sustainability Strategy: 4.1.5 Develop and implement IWMPs that meet and exceed the standards set by the National Waste Management Strategy and waste collection standards.					
IWMP's developed in 2011 need to be reviewed annually	UMDM Technical Services	Technical Services LMs DAEA	tbd	Immediately	Annual reviews of IWMP
Ensure and monitor implementation of IWMPs	UMDM Technical Services	Technical Services LMs DAEA	tbd	Immediately after adoption and on-going	LM annual reports including monitoring data and analysis of trends collated into a District report.
Implement source separation programme of recyclables at household, public sector buildings and business levels to reach 50%	UMDM Technical Services	Technical services at LM level , DEA, KFW	tbd	On-going	Source separation programme is implemented

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
recycling rate by 2018					
Support small collectors of recyclables at community and landfill sites to become formal collection enterprises	UMDM Technical Services	DED, DEA, KFW	tbd	On-going	Small recycler support programme is implemented
Develop a material recovery facility at Msunduzi landfill site	UMDM and Msunduzi LM Technical Services	CoGTA, DAEA	tbd	On-going	Material recovery facility is operational
Implement a progressive ban of organic waste from landfill sites and develop composting and anaerobic digestion (AD) facilities to treat organic waste	UMDM Technical Services	All LM's in UMDM	tbd	Immediately	Organic waste banned from landfill sites by 2018 and composting and AD facilities operational
Develop a large scale composting facility to treat garden waste from the Msunduzi and uMngeni LM's.	UMDM Technical Services	Msunduzi and uMngeni LM's	tbd	On-going	Composting facility developed and operational
Feasibility study into developing AD facilities undertaken	UMDM Technical Services	All LM's, KWANALU, Business Chambers, Large Organic Waste Generators, Govt of the Netherlands	tbd	On-going	Feasibility Study Completed
Develop and operate AD facilities across UMDM	UMDM Technical Services	Private Investors and large organic waste generators	tbd	Within next 5 years	AD facility operational
Build new district landfill site to ensure general and hazardous waste disposal capacity for the UMDM for next 50 years	UMDM Technical Services	All LM's , DAEA, DWA, DEA	tbd	On-going to be developed by 2020	New district landfill site is developed and operational
Develop a district waste information management system	UMDM technical services		tbd	On-going	Waste information system developed and operational

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Sustainability Strategy: 4.1.6 Establish urban open space and conservation management plans.					
Develop a District open space and conservation linkage framework based on the UMDM Biodiversity Sector Plan, KZN Protected Area expansion Strategy and any relevant Local Municipal open space initiatives	Environmental management specialist	EKZNW; Local Municipalities; DAEA and the Planning and Development Cluster	tbd	Within 5 years	uMgungundlovu District Open Space and Conservation Framework developed
Local Municipalities to Develop Open Space and Conservation Management Plans for municipal urban areas	Environmental management specialist	EKZNW; Local Municipalities; DAEA and the Planning and Development Cluster	tbd	Developed in parallel to or following the development of the uMgungundlovu Open Space Framework	All local Municipalities with adopted Open Space and Conservation Plans for Urban areas
Open Space and Conservation Framework and Plans integrated into Municipal schemes	Environmental management specialist	EKZNW; Local Municipalities; DAEA and the Planning and Development Cluster	tbd	Developed in parallel to or following the development of the uMgungundlovu Open Space Framework	LUMS with integrated Open Space and Conservation Land Use
Ensure that conservation management plans are developed and implemented for each of the open spaces	Environmental management specialist	EKZNW; Local Municipalities; DAEA and the Planning and Development Cluster	tbd		
Sustainability Strategy: 4.1.7 Undertake an extensive cultural heritage resource and landscape quality identification and classification programme.					
Review the SAHRA and Amafa websites to ensure that District and Local Municipal planning processes are in line with the policies, procedures and permitting requirements specified (www.heritagekzn.co.za and www.sahra.org.za/sahris)	Planning and Development Cluster	District and Local IDP managers	Internal	Next IDP review and subsequent reviews	Latest cultural heritage procedures, policies and permit requirements integrated into LM IDPs and SDFs.

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Engage with Amafa to access the latest cultutal heritage data for integration into IDPs and SDFs	Planning and Development Cluster	District and Local IDP managers Amafa Deputy Director of Professional Services and GIS Manager	Internal	Next IDP review and subsequent reviews	Latest cultural heritage procedures, policies and permit requirements integrated into LM IDPs and SDFs.
Incorporate heritage considerations into development proposals in terms of the Land Development Act including subdivisions and rezoning.	Planning and Development Cluster	District and Local IDP managers	Internal	On-going	Heritage considerations incorporated into all development proposals, including subdivisions and re-zonings.
Norms and standards being developed by CoGTA re landscape character assessments must be integrated in the IDP and SDFs as well as development application processes	CoGTA Senior Manager: Landuse Planning	LMs	Internal	As soon as norms and standards are completed and adopted	Landscape character integrated into IDPs and SDFs
Sustainability Strategy: 4.1.8 Establish community based tourism opportunities linked to cultural heritage sites and areas of landscape quality to support their protection and management.					
Integrate CH and landscape character into the LEDs ito tourism development opportunities.	Planning and Development Cluster	Amafafa and CoGTA LM LED managers	Internal	As soon as the CH data is available and the landscape character norms and standards are completed/adopted	LED plans include all CH and landscape character opportunities and are marketed
Engage with PMB Tourism and registered tour guides and B&Bs to ensure the creation of an enabling environment for the development of "The Freedom Trail.	Planning and Development Cluster	Amafafa Dep Dir Professional Services CoGTA LM LED managers PMB Tourism	Internal	Within 6 months and on-going	All related cultural heritage features optimally integrated into the Freedom Route with maximum exposure of the latter in all marketing opportunities.

2.5 Strategic Priority 5: Responding Effectively to Climate Change

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
STRATEGIC PRIORITY 5: RESPONDING EFFECTIVELY TO CLIMATE CHANGE					
Sustainability Objective: 5.1. The UMDM has put in place and implemented strategies that have reduced greenhouse gas emissions, brought about energy efficiencies and alternatives to coal-fired power, while also ensuring relevant climate change adaptation strategies are in place					
Sustainability Strategy: 5.1.1 Fast-track the equitable and universal access to acceptable standards of basic energy services.					
Roll out of energy efficient alternatives for cooking and heating to low income households currently not provided with electricity.	Technical Cluster LM Tech Services	ESKOM DEDT Green Economy Unit Human Settlements LM Tech Services	tbd	Initiated within six months and then on-going	100% of all new low cost housing developments fitted with solar water heaters.
Incremental transition from coal fired energy needs (cooking, water and air heating) to efficient alternatives within low cost households currently on the grid.	Technical Cluster LM Tech Services	ESKOM DEDT Green Economy Unit Human Settlements LM Tech Services	tbd	Initiated within six months and then on-going	20% transition from the current baseline.
Sustainability Strategy: 5.1.2 Establish the financial and human resources to manage and monitor air quality in the District.					
Devise organogram for Air Quality Unit	Exec Manager Community Services	AQO LMs	tbd	Within current organogram revision processes.	Appropriate organogram is approved
Budget for the establishment of Air quality Unit inclusive of operational and capital requirements	Exec Manager Community Services and Council	AQO LMs CFO	tbd	June 2014	Appropriate budget is approved and made available
Appointment of Air Quality Manager and personnel	Exec Manager Community Services	HR	tbd	June 2015	Air quality unit in place
Procure monitoring equipment and software for data collection	AQM	UMDM Procurement UMDM IT DAEA Air Quality Section	tbd	June 2015	Relevant equipment and software is in place.
Sustainability Strategy: 5.1.3 Decrease greenhouse gas emissions to levels in line with Cabinet approved targets.					
Initiate discussions between ESKOM and electricity	Climate change section in DAEA	UMDM Tech Services DEDT Green Economy unit	tbd	Within three months	Adoption and implementation of a

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
providers in the District to work towards the utilisation of more efficient energy sources and renewable electricity generation and formulate a plan to achieve reduced emissions.		LM electricity distributors ESKOM DoE			renewable energy and energy efficiency strategy leading to a minimum of a 5% reduction of GHG emissions
Revise and update the existing District Traffic Management Plan specifically to focus on the introduction of more efficient transport options, including addressing perverse incentives that promote inefficiencies.	UMDM Tech Services	KZN DoT SANRAL	tbd	Within a year of adoption	Revised and updated Traffic Management Plan
Engage with and play an active role in the Transnet rail rejuvenation process	UMDM Tech Services	Joint Chairs of the SIPS	tbd	Immediately	UMDM interests, ito enhanced transport efficiencies, taken into account in the process.
Engage with and play an active role in the N3 bypass process	UMDM Tech Services	Joint Chairs of the SIPS	tbd	Immediately	UMDM interests, ito enhanced transport efficiencies, taken into account in the process.
Develop a plan for energy intensive industrial operators to introduce energy efficiencies that result in GHG emission reductions	Climate change section in DAEA	PCB Industry reps LM energy distributors ESKOM DEDT Green Economy Unit	tbd	Within a year of adoption	Energy efficiency plan endorsed and implemented.
Integrate energy efficient design options into all new developments	Chair of the Planning and Development Cluster in the UMDM	LM Development Planning CoGTA SAPOA	tbd	Initiated within six months and then on-going	Energy efficiencies integrated into all new developments.

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Investigate ways of using the carbon tax framework to transition to a low carbon economy.	Planning and development cluster	PCB LM LEDs	tbd	Before Jan 2015 (i.e. the date when the carbon tax comes into effect)	Adoption of a low carbon tax strategy
Develop plan for the efficient use of energy by the UMDM.	MM	UMDM AQO	tbd	Within three months and on-going	Energy efficiency plan developed, implemented and monitored.
Ensure that all industries that are deemed to conduct listed activities (Section 21 of NEMAQA) are licensed, including small emitters.	AQO	DAEA AQO	tbd	On-going	100% of all emitters are licensed.
Audit industries for-compliance with license requirements	AQO	DAEA AQO Relevant environmental management inspectors at all levels of government	tbd	On-going	100% compliance
Sustainability Strategy: 5.1.4 Promote efficient and clean public transport systems.					
Develop integrated rapid public transport system for urban areas	Msunduzi Municipality	DoT	tbd	Within 5 years	Integrated transport system in place
Develop dedicated cycle and pedestrian lanes to promote non-motorised transport systems	Msunduzi Municipality	DoT	tbd	Within 5 years	Non-motorised transport networks in place
Sustainability Strategy: 5.1.5 Develop and implement a climate change response strategy.					
Adopt Climate Change Response Strategy	UMDM Tech Services and Community Services	All LM's	tbd	July 2013	UMDM Council Adopts the Climate Change Response Strategy
Implement Climate Change Response Strategy and Adaptation Plan	UMDM Tech Services and UMDM Community Services	All LM's and all relevant Provincial and National government departments, business sector, NGO's and CBO's	tbd	2013 - 2033	

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
Develop Early Warning Systems (EWS) and response plans for extreme weather conditions	UMDM Community Services	Msunduzi Disaster Management, COGTA, Umgeni Water, South African Weather Services	tbd	Initiated within six months and then on-going	EWS developed and operational
Change the focus of the Disaster Management Unit from responding to disasters to disaster risk reduction	UMDM Community Services	Msunduzi Disaster Management, COGTA, Umgeni Water, South African Weather Services, City of Rio de Janeiro and City of Cape Town	tbd	Initiated within six months and then on-going	Disaster Risk Reduction (DRR) approach is institutionalised
Identify most vulnerable human settlements now and in future by mapping 100 year floodlines, based on climate change projections, in vulnerable areas	UMDM Community Services and Technical Services	COGTA, Umgeni Water, Human Settlements and all LM's	tbd	Initiated within six months and then on-going	Relocation Plans developed or DRR measures put in place
Integrate spatial and development planning with adaptation planning	Municipal Manager UMDM	COGTA, Provincial Planning Commission and DAEA	tbd	Initiated within six months and then on-going	Adaptation Plan informs spatial and development planning
Build a multi stakeholder partnership – a district climate change council to champion the CCRS	Municipal Manager & Mayor UMDM	COGTA, DAEA, DEDT, DWA, Premiers Dept, Business sector, NGO's CBO's , UKZN, DUT	tbd	Initiated within six months and then on-going	uMgungundlovu Climate Change Council formed and meets
Raise awareness of higher risks of diseases due to higher temperatures	UMDM Community Services Environmental Health	Deot of Health NGO's CBO's	Tbd	Initiated within six months and then on-going	Awareness campaign is undertaken
Adopt rainwater harvesting systems to conserve water and in rural areas to fight fire and for agricultural activities	UMDM Technical Services	DWA, DUT, NGO's	Tbd	Initiated within six months and then on-going	Functional rainwater harvesting systems are installed in vulnerable rural areas in particular
Develop and enforce policies and regulations to control the use of chemical	UMDM Technical Services	DWA, Dept. of Agriculture and KWANALU	Tbd	Initiated within six months and then on-going	Policies and regulations are adopted and EMI's enforce the regulations.

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
fertilisers and management of animal waste in order to improve water quality					
Undertake a hydrological study to calculate current and future demand for water for irrigation within the UMDM	UMDM Technical Services	DWA, UKZN KWANALU	Tbd	Initiated within 12 months and then until the process is completed.	Study undertaken
Install stormwater grids at entrance to stormwater catchpits in all urban areas to prevent waste infiltration into stormwater management systems	UMDM Technical Services	All infrastructure depart at an LM level	Tbd	Initiated within 12 months and then until the process is completed.	Stormwater grids are installed on catchpits in urban areas
Review design, construction and operation parameters of all types of basic services infrastructure given the short term variability in climate and long term changes in climate that are projected to occur.	UMDM Technical Services and all Technical and Infrastructure Departments from LM's in the UMDM	COGTA, Engineering Consultants, Ethekwini Metro, UKZN	Tbd	Initiated within 12 months and then until the process is completed.	Design, construction and operation parameters for basic services infrastructure has been adapted to become climate resilient.
Facilitate processes to get agricultural sector to investigate impact climate change will have on planting and harvesting times	UMDM Community Services	Dept. of Agric., KWANALU	Tbd	Initiated within 12 months and then until the process is completed.	Investigation undertaken
Develop energy efficiency plan and strategy for all public sector buildings within the UMDM	UMDM Technical Services	DEDT, DPW	Tbd	Initiated within 12 months and then until the process is completed.	Energy efficiency plan and strategy adopted and implementation is underway
Develop a low carbon economy strategy and plan	UMDM Community Services	DEDT, All LM's, Business Chambers	Tbd	Initiated within 12 months and then until the process is	Low carbon strategy and plan developed

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
aligned with the carbon tax regime and the need to build a greener economy with reduced emissions of GHG				completed.	
Support existing greening programmes and build new programmes that protect and restore ecological infrastructure	UMDM Technical Services and Community Services	DEA, DAEA, NGO's	Tbd	Initiated within 12 months and then until the process is completed.	Greening programme is being implemented
Protect and restore ecosystems that deliver ecosystem goods and services	UMDM Technical and Community Services	DEA, DAEA, UIEP, NGO's and Ethekwini	Tbd	Initiated within 12 months and then until the process is completed.	Significant number of critical biodiversity areas have been protected and restored .
Ensure agricultural sector is part of early warning system (EWS) developed and that support is given to small and subsistence farmers to adapt to climate change	UMDM Technical and Community services	DAEA, KWANALU, LIMA	Tbd	Initiated within 12 months and then until the process is completed.	EWS includes agricultural sector and resilience programme to climate change vulnerability is undertaken for the small and subsistence scale farmers of the UMDM
Create awareness at a citizen level of the climate change projections and the adaptation plan to encourage individual and community action	UMDM Technical and Community services	Dept. of Premier, NGO's and Radio Stations	Tbd	Initiated within 12 months and then until the process is completed.	Public awareness campaign is undertaken
Implement default ecological buffers to reduce projected flood risks by setting development buffer zones around rivers and significant water bodies	UMDM Technical and Community services	DWA, DAEA	Tbd	Initiated within 12 months and then until the process is completed.	Ecological buffer to reduce flood risks is put in place across UMDM
Implement a programme to	UMDM Technical and	DAEA, NGO's, KWANALU	Tbd	Initiated within 12 months	Mitigation plan developed

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
reduce GHG emissions in the agricultural sector- including green sugar cane harvesting to avoid burning and changed livestock feeding	Community services			and then until the process is completed.	for agricultural sector
UMDM should establish incentive based programme to get business sector to reduce carbon footprint	UMDM Technical and Community services	Business Chambers, DEDT,	Tbd	Initiated within 12 months and then until the process is completed.	Incentive programme with associated by laws developed to reduce carbon footprint
Sustainability Strategy: 5.1.6 Update disaster management plans to include pro-active response to climate change.					
To be a specific action or set of actions within the CCRS					
Sustainability Strategy: 5.1.7 Restore and maintain indigenous woodlands, forests and other areas suitable for the sequestration of carbon.					
Covered under SP 2					
Sustainability Strategy: 5.1.8 Reducing household indoor combustion of wood and coal by increasing access to clean electricity.					
Covered under 5.1.1					
Sustainability Strategy: 5.1.9 Develop and implement increased standard design specifications for key infrastructure to cater for extreme climatic events.					
Should be covered under CCRS					
Sustainability Strategy: 5.1.10 Develop incentives for energy efficiency and air pollution reduction and abatement.					
Investigate and develop Clean Development Mechanism (CDM) options within the UMDM	Exec Manager Tech Services	AQO Manager: Municipal Functions	tbd	Within two years of adoption	Registered CDM/s
Initiate discussions with Provincial Treasury to investigate ways of maintain support to municipalities who introduce incentives for energy efficiencies.	MM	UMDM AQO DAEA AQO	tbd	Within three months of adoption and on-going	Provincial treasury support for incentive schemes
Link up with and monitor the outcome of the V-NAMA Energy Efficiency Programme pilots in iLembe District for potential replication in the	UMDM AQO	DAEA AQO iLembe AQO DoE DEA M&E	tbd	Immediately and on-going	Potential replicable project identified, conceptualised and implemented.

Actions	Responsible individual (who)	In collaboration with (with whom)	Resource requirements (with what)	Timing/time frame (by when/how often)	Indicator of success
UMDM					

2.6 Acronyms

ACRONYM	MEANING	ACRONYM	MEANING	ACRONYM	MEANING
ADA	Agri Business Development Agency	EPWP	Extended Public Works Programme	PDA	Planning and Development Act
AQO	Air Quality Officer	GIS	Geographical Information System	PCB	Pietermaritzburg Chamber of Business
CBO	Community based organisation	HR	Human Resources	PGDS/P	Provincial Growth and Development Strategy/Plan
CFO	Chief Financial Officer	IDP	Integrated Development Plan	RTI	Road Traffic Inspectorate
CoGTA	Cooperative Governance and Traditional Affairs	IEM	Integrated Environmental Management	SANBI	South African National Biodiversity Institute
DAEA	Dept. of Agriculture and Environment Affairs	IT	Information Technology	SANRAL	South African National Road Agency Limited
DAFF	Dept. of Agriculture, Forestry and Fisheries	ITB	Ingonyama Trust Board	SAPOA	South African Property Owners Association
DEA	Dept. of Environmental Affairs	KfW	Kreditanstalt für Wiederaufbau	SIP	Strategic Integrated Projects
DCO	District Conservation Officer	KWANALU	KwaZulu Natal Agricultural Union	SoER	State of the Environment Report
DEDT	Dept. of Economic Development and Tourism	LED	Local Economic Development	Tbd	To be determined
DoE	Dept. of Energy	LIMA	LIMA	TIKZN	Trade and Investment KwaZulu Natal
DoT	Dept. of Transport	LM	Local Municipality	UEIP	uMngeni Ecological Infrastructure Partnership
DPW	Dept. of Public Works	MLM	Msunduzi Local Municipality	UMDM	uMgungundlovu District Municipality
DUCT	Duzi uMngeni Conservation Trust	MM	Municipal Manager	UKZN	University of KwaZulu Natal
DUT	Durban University of Technology	NGO	Non-government organisation	ULM	uMngeni Local Municipality
DWA	Dept. of Water Affairs	NRM	Natural Resource Management	UW	Umgeni Water
EKZNW	Ezemvelo KZN Wildlife	PA	Protected Area	WESSA	Wildlife and Environment Society of South Africa

3 ENVIRONMENTAL EDUCATION POLICY AND ACTION PLAN

As part of the process of developing the SEA and SEMP, the professional service provider was commissioned to develop a policy and action plan for environmental education in conjunction with the SEMP. Aspects of awareness raising and capacity building have been covered in the SEMP but it is recognised that such a policy and action plan is crucial to the successful implementation of the SEMP and attainment of the SEA vision and desired state of the environment. Dr Jim Taylor, an internationally recognised specialist in the field of environmental education and fortuitously based at the Wildlife and Environment Society for South Africa's Umgeni Valley Ranch in Howick, was sub-contracted to assist with the compilation of the environmental education policy and action plan. This has resulted in a product that is in direct alignment with the environmental management needs of the UMDM and of the SEA and SEMP. It is also being put forward on the basis of existing environmental education initiatives being implemented within the UMDM and with UMDM officials. On the basis of these hands-on experiences and existing relationships, this policy and action plan is presented in confidence as Annexure 1.

4 SEMP REVIEW PROCESS

As with the review process for the SEA, the SEMP review process was designed to ensure that most official comment was received and integrated into the report prior to being released for public review.

4.1 Review by Relevant Authorities

The crux of this report, i.e. the SEMP Action Plans (see Section 2) were populated by officials from the various government agencies with legal mandates related to the key environmental management issues identified during the Status Quo and SEA phases of this project. This process is described in detail in Section 1.2.2. In addition to this the project steering committee reviewed this report in its first draft form and was provided with an opportunity to comment. It was also agreed that any additional comments could be submitted during the public review period.

It must be noted that no additional comments were received from the relevant authorities during the period referred to above. Some detailed discussions were had during the project steering committee meeting that authorised the release of the report for public review and the outcomes of these discussions were captured directly into the SEMP action plans. Other than this there was an observation that a check on the entry of responsible individuals throughout the action plans was required to ensure consistency. Officials within the UMDM undertook to do this check and the SEMP was amended accordingly.

Discussions with relevant authorities at the project steering committee were primarily related to provincial biodiversity planning and its links with local level planning. The dilemma recognised here was the lack of environmental management capacity within the municipalities and the fact that the SEA is difficult for planning staff to interpret easily without the backup of environmental management specialists. Also discussed was the necessity to distinguish between urban and rural open space planning and conservation management, but there was consensus that these aspects

were sufficiently covered in the SEMP. However, caution was raised as to the need to ensure that the management of rural open spaces needs to be captured in a management plan of sorts as this landscape is more complex than the urban one where a municipality can be held accountable.

4.2 Public Review

The public review process began with the draft SEMP Report being sent to all registered stakeholders on 15 July 2013 with a request for their critical review of the report and the submission of their comments. An advertisement inviting public review was published in the Witness and Echo on 18 July 2013. The public review period was set to end on 19 August 2013, but an opportunity for the public to engage with the project team was provided on 30 July 2013. An open house meeting was arranged for this date at the meeting facility of the Regional Office of the Department of Agriculture and Environment Affairs at Cascades in Pietermaritzburg. The meeting was scheduled to begin with a formal presentation at 14h00 allowing for an open session for questions and comments. This was then followed by an extended period of time until 18h00 to allow for one-on-one engagements with the project team. No members of the public used this opportunity to engage with the process and the only individual who did attend was a representative from the Wildlife and Environment Society of South Africa (WESSA) who had specifically come to the meeting to field any questions that may have arisen as a result of the Environmental Education Policy and Action Plan that is an annexure to this report.

A single comment was received via email which related to specific concerns of noise and visual impacts from the Mkondeni Light Industrial Area on adjacent residential suburbs. As this was not an aspect that was covered in the SEA, it had not emerged as one that required relevant actions in the SEMP. However, as these are relevant concerns, they were integrated into the SEMP's action plans under Strategic Priority 1.

It can only be hoped that the scarcity of comments back from the public reflects a broad acceptance for the SEMP. While there may well be a significant amount of truth in this assumption based on the positive public opinion on the preceding SEA report, it can also be deduced that insufficient resources were allocated to this aspect of the project. It is thus recommended that with future iterations of the SEA and SEMP, more effort is put in to ensure that the public in general are drawn into the process, both in terms of providing critical review, as well as ensuring exposure to the process and its outcomes.

5 CONCLUDING REMARKS

This report follows on from a detailed assessment of the condition of the District's natural resources, i.e. the Status Quo Report, which raised the alarm in terms of the extent to which these have been over-exploited and mismanaged. A long-term vision for the restoration and sustainable management of the natural resources of the District was captured in the SEA Report together with tools for ensuring the integration of sustainable decision-making into all planning facets of the District and Local Municipalities, i.e. environmental control zones and guidelines. The SEA Report also included a sustainability framework which provided the foundation for the detailed action plans

captured in this report. The latter represents the actions that are deemed essential to help move the District towards the achievement of its long-term sustainability vision, but in the first of a series of five year focussed actions.

The SEMP action plans, as captured in the tables in Section 2, are carefully crafted to provide detailed guidance for meaningful implementation. The relevance of each action can be traced back through a hierarchy of strategic statements that all work back to the vision for the District. As such each action is relevant and defendable, but is also a necessary part of the whole picture. This SEMP calls the District and its strategic partners into immediate action for the sake of securing the well-being of society and the resilience of the economy, both within and adjacent to the District. No time must be lost in taking these actions forward as soon as Council endorsement has been obtained.

Annexure 1: Environmental Education Policy and Action Plan

A guideline for education for sustainable development in the uMgungundlovu District Municipality

In support of the uMgungundlovu District Municipality SEA and SEMP processes

WESSA
PEOPLE CARING FOR THE EARTH

Education is the most powerful weapon that you can use to change society (Nelson Mandela)

1. BACKGROUND

The Sustainability Framework for the uMgungundlovu District Municipality as developed for the SEA and SEMP outlines the environmental issues and strategic interventions necessary to overcome a number of environmental management challenges which include, but are not limited to:

- Limited awareness among municipal staff, stakeholders and the general public about the environmental challenges that face the future development of the district,
- In excess of 50% transformation of the natural capital of the district,
- Social issues associated with limited incomes and low levels of education;
- The progressive loss of agricultural land to different forms of non-agriculture development,
- Loss of natural water production and filtration capacity (quantity and quality),
- Poor air quality associated with a wide variety of sources of pollution,
- Climate change,
- Urban sprawl as a major driver for loss of natural capital,
- Limited environmental management capacity within local government and strategic partners.

In the Sustainability Framework these environmental issues are tabulated against 'Sustainability Objectives', 'Thresholds of Potential Concern / Rehabilitation Targets' and 'Indicators'. The 'indicators' are designed to assist with measuring the achievement of the objectives. The SEA's Sustainability Framework thus provides a mechanism which is intended to assist the UMDM work towards the vision set for the desired state of the environment.

In the process of preparing the SEA/SEMP for uMgungundlovu, it has become apparent that in order for the implementation of the environmental plan to succeed it is critical that environmental knowledge and awareness is enhanced among municipal staff, councilors and the general public. Following the requirements of the terms of reference for the SEA, this report is intended to provide a framework within which an Education for Sustainable Development (ESD) programme can be rolled out in the uMgungundlovu District.

This document is therefore used to provide an overview of ESD and how it could be meaningfully applied in the District. An outline is provided on the types of courses available via WESSA (The Wildlife and Environment Society of South Africa) which is an accredited ESD service provider in South Africa. The final section of this document provides recommendations on how the district should proceed with the roll out of the proposed ESD programme.

2. CONTEXT FOR ESD

In this section a background and context is provided on the three key forms of capital that impact on the Earth's life support systems (see **Error! Reference source not found.**). This in turn translates into the need for human capital and social learning as the basis for achieving sustainability through ESD.

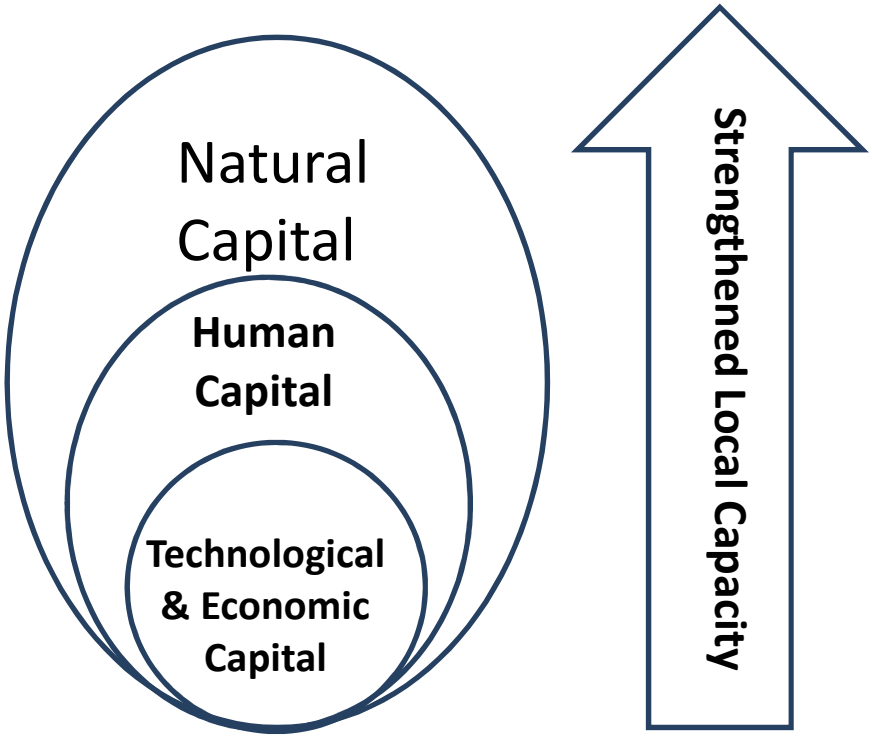

Figure 1: Three Forms of Capital

These three forms of capital include ecological (natural) capital, human capital, and technological (including economic) capital. These types of capital work together, (although they are sometimes at odds with each other), to support or compromise the potential to sustain life on Earth. This

illustration differs slightly from the illustration from the National Strategy for Sustainable Development, as presented in the SEA, because of the focus on education in this illustration.

The first of these forms of capital is the **ecological capital** or life support systems that provide water, food, air and a climate that supports life. The second is the **technological capital** that enables people to overcome limitations and scarcity. When we no longer have sufficient fresh water (ecological capital), supplying a city like Pietermaritzburg, for example, we can build a dam in a neighbouring catchment (the Mooi River) and transport water (using technological capital) to the uMngeni Catchment to overcome the deficit that human demands are creating. Provided there is sufficient water in a neighbouring catchment as well as sufficient money, expertise and technology, water can be transported so that the people of Pietermaritzburg will receive enough fresh water for their needs.

Human capacity is the third form of capital. It is the capital that includes the ability of people to foresee, face up to, and solve the problems that threaten life on our planet. It is crucial that this type of capital be developed since only human capacity can mitigate the lifestyle choices that compromise ecological capital and the unwise application of technological capital that achieves short-term gains with associated longer term risks and future scarcity.

Environmental education, or education for sustainable development, works to develop the human capital in ways that will contribute to improving and sustaining our natural capital. This kind of education needs to move beyond awareness campaigns to creating opportunities for social learning and meaningful human capacity development. Within the context of the SEA and SEMP, it is aimed at providing the relevant officials of the UMDM and its Strategic Partners with the skills to rapidly move towards living more sustainably.

Social Learning and meaningful Human Capacity Development

Social learning principles have been developed through much experience and applied research over many years. These principles build on environmental awareness and ensure that human capacity is strengthened to ensure that people have the ability to foresee, face up to, and solve the problems that threaten life on our planet.

Social learning processes should:

- Be relevant and appropriate to the situation and context of the participants.
- Mobilise, wherever possible, the prior knowledge or understanding that people have so that it can be engaged with, and, where appropriate, challenged so as to support an enabling 'learning for change' environment.
- Support, where appropriate, work-place-based learning. The learning needs to relate to the work environment of the individual rather than be removed and hypothetical.
- Offer participants the opportunity to engage in practice, or task-based learning, so as to strengthen the learning experience. Participants and institutions should undertake 'learning' tasks that are related to their specific context.

- Support 'part-distance' learning where appropriate. This means establishing an appropriate mix of 'work together' (at a workshop or training session) and then 'work away' (in the work-place) tasks.
- Support rich dialogue opportunities (discussion by, with and amongst participants), practical fieldwork experiences, reporting on experiences and sharing ideas as well as 'action taking' related to the learning. The appropriate interlinking of such processes will strengthen meaningful learning.
- Encourage the sharing of the 'tools of science' or 'learning tools' so that participants become confident in using tools to find out about the world around them and use the 'tools' to explore and solve problems. An example of this are simple water quality monitoring kits (e.g.miniSASS) that can provide a meaningful research experience that enables people to investigate and deal with and monitor water quality issues.
- Support participants to understand the discontinuities that are all around us – the degradation of our life support systems, such as fresh water, is one example. Social learning processes that enable such discontinuities to become apparent and engaged with can help a great deal.
- Support reflexivity in terms of evaluating what we do, understanding why we do it, considering alternatives and adopting more sustainable life-style practices can support meaningful social transformation.

3. STRATEGY FOR ESD

This strategy for ESD is based on a 'practice based orientation' designed to complement the more conventional 'awareness-based' approaches to social change. In establishing an effective environmental education programme in UMDM the concept of 'Stepping up to Sustainability' has been developed. This concept has been widely applied by WESSA in various regions of South Africa with much success. It is envisaged that in the UMDM it could be embraced by government, traditional, private and interested and affected sectors of society. The 'Stepping up to Sustainability' concept involves the following 7 steps (see Figure 1 below):

1. ***Communication:*** The use of social media (based on cell-phone technology sharing) in the development of ***an information portal*** which will provide a key communication platform.
2. ***Forums:*** The support for 'forums' where the sharing of challenges, innovations and capacity building opportunities can be shared. Where forums already exist these should be strengthened.
3. ***Presentations*** for knowledge sharing: The development of a range of presentations, using power-point where appropriate, tailored for different audiences and designed to inform stakeholders. The presentations are supported by the sharing of a range of "change-choice-practice" methodologies that are designed in response to pressing sustainability issues in the region.
4. ***Workshops:*** The development of short, half day, workshop sessions where different sustainability issues can be explored through 'practice based dialogue' and interactive 'sharing and doing'.

5. ***Courses (non-accredited):*** Providing responsive non-accredited courses in the form of workshops which can support participants with a grounded opportunity to address particular sustainability issues.
6. ***Accredited Courses:*** The provision of a range of accredited work-place-based Environmental Practices training courses at SAQA levels 2 and 5 to support capacity building for workers and managers respectively. Such courses will include understanding ecosystem services and sustainability.
7. ***Training of Trainers:*** Finally a 'training of trainers' course (also level 5) is recommended which will provide accredited training expertise to support training needs in the region. Once qualified trainers will be able to provide a wide range of training opportunities as described above.

Learning places: The foundation or platform on which the seven steps are based may be described as the 'Learning Places' in the region. These could include public places such as botanical gardens, a water purification or landfill site or College or University. The implementation of a ***sustainability commons***[1] concept, where public spaces are dedicated to learning about sustainability practices, can then be developed at these different 'sites of learning.'

The stepping-up concept refers to the degrees and levels of participant interaction with the programme. Various stages or steps describe the types of communication, interactions or courses. Someone may only interact with the programme by simply seeking information about Climate Change adaptations, for example. Other people may wish to attend a short course on sustainability practices or an accredited environmental education course. The steps thus represent the various ways that people can participate in learning about sustainability issues and practices as well as adaptations and mitigations. The steps also convey the degree of commitment required for each particular step – the lower steps require very little commitment by participants and the higher steps require considerable commitment in the form of time and engagement and the production of a Portfolio of Evidence.

The proposed strategy and associated approaches are considered in more depth in this policy proposal aimed at enhancing environmental awareness in the UMDM.

[1] A 'Sustainability Commons' is a rich and diverse pool of sustainability-focused learning, technologies, and tools; whose resources are deployed locally for the benefit of the community and the environment. A 'Sustainability Commons' is more than a physical space. It is the culmination of historical trends and practices within the field of environmental education; it is an experiment in social learning, and an argument for and against science and technology. It is a meaning- making exercise in facing environmental risks, and a movement towards social ecological justice through sustainability practices. It supports the communal 'moments' of learning.

Figure 1: Stepping up to Sustainability with uMgungundlovu

With strategic planning Indicators

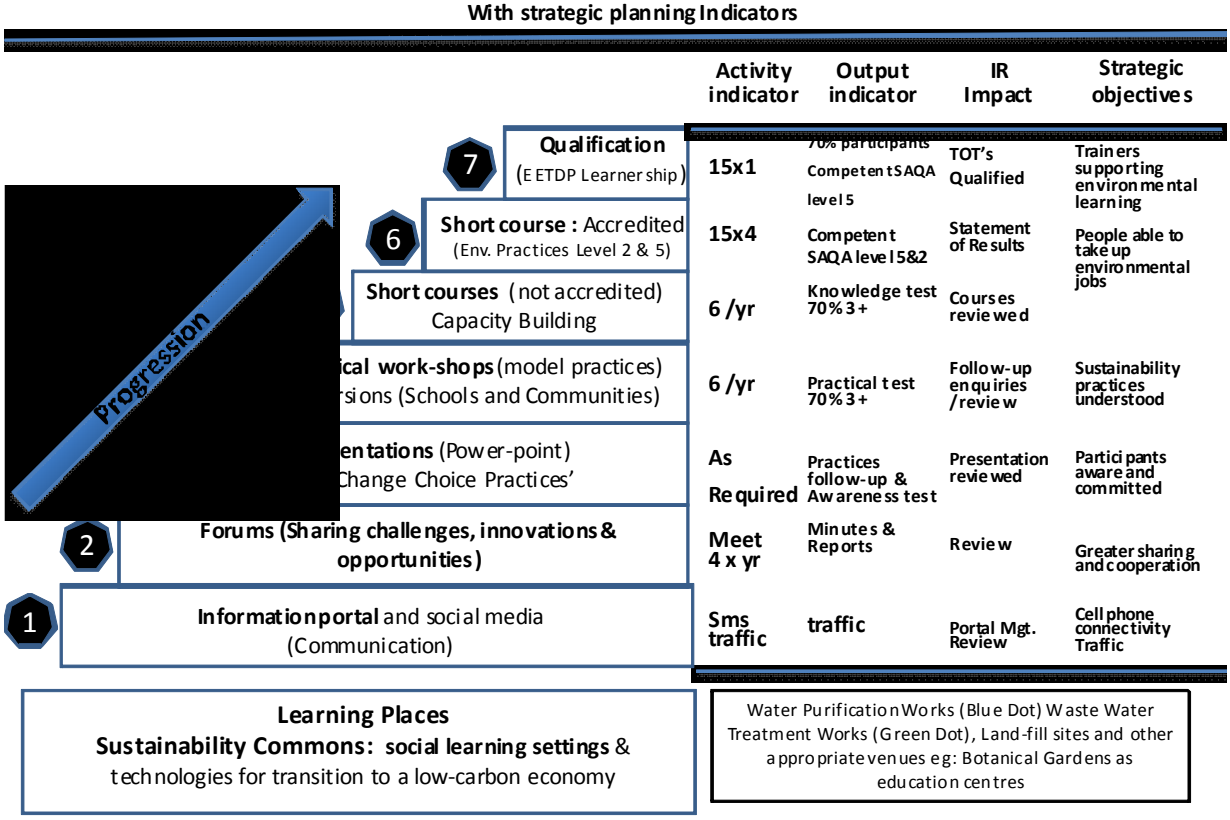

Figure 1: The seven steps in the Stepping up to Sustainability model

4 GUIDELINE FOR ESD

4.1 Focus Groups

Based on the status quo findings of the SEA, the following focus groups should be considered as one seeks to apply ESD within the UMDM. The 'Stepping up to Sustainability' concept provides different levels at which participants can engage with and become involved in the various learning and deliberation processes. These will be discussed in more detail in Section 5.

1. Municipal Employees including Ward Councillors, Municipal Officials (Heads of Department and line-function staff)
2. Government Departments (MECs, Chief Directors, Directors, Staff)
3. Business and Industry
4. Unions and workers
5. Agriculture – farmers and farm workers
6. Residential – rural and urban
7. Domestic workers
8. Under and unemployed
9. Universities, Technical - and FET Colleges
10. Schools (senior, primary, crèches)

4.2 Existing Projects & Potential Partners

Where possible, for the effective implementation of ESD, educational programmes should be integrated within existing structures and procedures. Programmes should also be designed to strengthen municipality-community partnerships.

Despite many challenges a number of effective environmental education programmes are currently being undertaken in the UMDM region. These include the Mpophomeni Sanitation Education Project and a range of projects that various NGOs and civil society partnerships are implementing with much success. Some worth noting are:

- The Mpophomeni Environmental Champions – monitoring various waste, water and sanitation related issues in townships through cell-phone sharing and linkages with local municipality;
- The Mpophomeni Theatre Company: water and sanitation street theatre for awareness raising and dialogue processes that support members of the public to engage with local issues and risks.
- Shiyabazali Water Quality Monitoring project – this project is supported by DUCT (the Duzi uMngeni Conservation Trust) and provides data and links to the Waste Water Treatment Works, on the waste water entering the uMngeni River below Howick;
- MiniSASS fieldwork – this research is undertaken by school and tertiary groups of students as well as public interest groups and is being undertaken across various catchments;
- Various fieldwork courses for pupils and adults are being implemented at a number of venues within the UMDM;
- The Eco-Schools programme – literally thousands of school children are engaged in sustainability practices through the Eco-Schools programme which is supported by various government departments and corporate partners;
- Various Stewardship, Conservancy and Biosphere initiatives are also being developed in the region. Ezemvelo KZN Wildlife is providing a coordinating role in this regard;
- DUCT River care teams and associated capacity building courses;
- Urban/peri-urban biodiversity initiatives;
- Entrepreneurship and recycling initiatives of the Wildlands Conservation Trust;
- A range of programmes by the African Conservation Trust; and
- A range of programmes by WESSA.

4.3 Engaging With Focus Groups

There are a range of ways in which different interest groups can engage with the various steps towards sustainability, as outlined in Figure 1. These are summarised in Table 2 below before plans for each group are discussed in more detail.

Table 2: Levels of Intervention for Different Interest Groups

GROUP	ESD INTERVENTION – LEVEL OF STEPPING UP						
	1	2	3	4	5	6	7
Municipal Employees							
Government Departments (MECs, Chief Directors, Directors, Staff)							
Business and Industry							
Unions and workers							
Agriculture – farmers and farm workers							
Residential – rural and urban							
Domestic workers							
Under and unemployed							
Universities, Technikons and FET Colleges							
Schools (senior, primary, crèches)							

3.4 General Introductory Courses

The recently developed **Environmental Practices Courses** which are accredited through the Local Government: Sector Education and Training Authority (LGSETA) are currently being applied in various parts of South Africa. The courses should be conducted for workers, *and simultaneously* for managers, to ensure that the development of understanding is congruent at a management and worker level. The environment practice courses are skills programmes that consist of three compulsory modules (i.e. modules that all workers do no matter what their operating context):

- Module 1 – Understanding our natural environment: this is a basic introduction to concepts of environment, sustainable development and ecology;
- Module 2 – Understanding and using environmental management tools: this is a very basic introduction to environmental management in the context of workers and operators in the range of occupations covered by this skills programme; and
- Module 3 – Best environmental practice in my workplace: this module aims to support the workers to change practices in their occupation towards more environmentally sustainable options.

Each learner then chooses two elective modules according to their occupation from the following options:

- Sustainable waste management (2 modules)
- The water cycle (1 module)
- Monitoring water quality (1 module)
- Managing invasive alien plants (1 module)

The environmental practices courses are not only designed to support the acquisition of knowledge but are practice based. Such courses are assessed according to portfolios of evidence that demonstrate sustainable practices and support a developing sense of pride and purpose in participants. These courses are recommended at steps 6 and 7 of this human capacity development strategy.

It is suggested that modules 1 and 2 would be suitable as introductory material to the different interest groups listed below and a programme for the roll out of these courses will need to form an integral part of the implementation strategy for ESD in the UMDM.

4.4 More Specific Courses

Once the initial training has been completed, further more advanced courses need to be made available, specifically in those fields identified in the SEA-SEMP where skills are required to achieve the interventions necessary to overcome current issues and challenges to sustainable development in the region.

The suggested course materials that need to be developed to meet the 'high level' need include an expansion of Module 3 above since there are many issues that need to be tackled that do not form part of conditions of employment of those employed in the private, public and NPO sectors, and consequently will not be dealt with unless included in this guideline.

Core Principles:

- In this more specific component of the ESD Guideline it is proposed that there are three broad categories in which courses need to be provided which include:
  - Principle and policy
  - Actual 'hands on practise'
  - Awareness creation, posters, talk shows, role play, etc.

  Courses developed in these categories could include all or some of the three levels depending upon which is appropriate.
- Government's role in the more specific course development and administration is not to run the courses, but rather to create an enabling environment within which NPOs and private sector can provide courses but in accordance with recognised standards.
- Developing courses on 'environmental ethics' in order to inculcate a culture of responsibility for the environment at all levels of government and society.
- Developing courses and further debate on the notions of sustainability and costs inherent in the 'Sustainability of Stuff' where real costs to the planet are not being factored into costs of products to the end user. In other words the resources of the Earth have and continue to (on a declining scale) subsidise the real costs of goods. The time has come for education on the establishment of a 'real cost economic model' to sustain what remains of our global resources.
- Introducing the concept of 'payment for ecosystem services' (PES) into business management courses such that mechanisms for re-investing in the rehabilitation and sustainable management of the natural environment to optimise ecosystem service production becomes the norm in business practise.

Practices to be engaged with:

- Introducing demonstration projects and best-practise as part of all course work.
- Specific courses need to be developed (if not available) on sustainable water use management practises in the context of different sectors:
  - Government primarily responsible for production, treatment, reticulation, monitoring and regulation of water management and pollution;
  - Industry (heavy and light) primarily responsible for use of water use, limiting water pollution and return to natural systems as well as treatment plants;
  - Agriculture (arable) responsible for sustainable use of natural water resources (dry-land and irrigated) for food production, pollution of surface and groundwater sources and return to natural systems; and
  - Domestic users responsible for managing consumption, limiting pollution and returning to natural systems via treatment works.
- Specific courses need to be developed on sustainable land use management practises in the context of different sectors:
  - Spatial-land use planning (See CoGTA training modules) and land allocation by governmental agencies – there is an urgent need for accountable land use to protect against urban sprawl and extension of the built environment into rural areas;
  - Industry requires courses in the sustainable use of land resources in the form of more economical use of limited space, densification on sites, energy efficiency in building design and use, recycling on factory sites, resources sharing between factories and factory development outside of designated urban areas in exceptional circumstances, e.g. saw-mills.
  - A host of course materials have been developed over many years at Cedara and in certain NPOs agencies involved in agriculture, these materials need to be packaged into accredited and non-accredited groups and then made available to large, medium and small scale farmers to introduce sustainability practises in all form of agricultural production; and
  - Courses in the use of land for domestic residential purposes are also needed. These would extend from township layout, densification of buildings as opposed to extensive sprawl (large plots). Training courses in the use of each plot involving location and design of buildings, energy and water efficiency (rainwater harvesting, alternative energy generation), allotment gardens for domestic food production should be developed and implemented.
- Specific courses need to be developed on sustainable atmospheric management practises in the context of different sectors:
  - Mitigation of industrial emissions;
  - The judicious application of fire as a management tool in the grassland portions of the District;
  - The use of fire to prepare fire breaks; and
  - The elimination of fire as a tool in the burning of sugar cane.
- Specific courses need to be developed on sustainable waste management practises in the context of different sectors:
  - Government is primarily charged with the establishment and operation of sustainable waste management sites, the effective disposal and recycling of waste (solid waste and sewerage) and regulation of waste disposal. Government needs to implement waste recycling

programmes which are user friendly for industry and domestic users alike. Courses are needed for government officials in the importance and practises involved in re-cycling;

- Owners and employees involved in industry need to be made aware through courses of the existing ISO standards relating to waste generation and the responsibility they have to meet these standards and not become involved in cost-cutting exercises which results in dumping of untreated waste in river systems;
- Farmers (at all levels) are responsible for recycling of agricultural waste and need courses in the incorporation of recycling to augment nutrient replacement rather than the use of chemical fertilisers. Courses are also required in the management and inappropriate use of and the dumping of chemicals on farms; and
- Courses are required among urban and rural dwellers throughout the district in the do's and don'ts associated with domestic refuse disposal. In urban areas the 'streaming of waste' starts at home and householders need to be made aware of the importance and value of cleaning and separating waste for recycling. The costs to society associated with indiscriminate dumping need to be integrated into course materials in order to inculcate revised social norms associated with illegal dumping.

- Specific courses need to be developed on sustainable transportation management practises in the context of different sectors:
  - Courses are required for government economists, transport and spatial planners aimed at shifting bulk goods and passenger transportation back to rail both inter and intra urban area in order to move away from heavy reliance on fossil fuels and individual reliance on private transportation. The focus of courses here should be to demonstrate the real costs to the individual and society associated with current road based transportation systems.
  - Courses are also required that support the development of a culture where cost and time efficiency becomes important to the public in relation to transportation. Some current systems are cited as being among the most inefficient in the world.
  - The use by industry of long-haul heavy duty road transport is unsustainable and captains of industry need to be educated in the use of alternatives such as rail. Industry needs to pressurise government into reforming the rail system such that it is more efficient than road particularly in terms of collection, and delivery turn-around times and safety of goods.
  - Courses are required for farmers in the rationalisation of bulk transportation for production inputs and the delivery of produce for processing and marketing. Similarly rationalisation and co-ordination between farming operations and input suppliers could be used to cut down the number of long-haul vehicles on the roads which in turn would reduce road maintenance costs. Similarly if rail were more efficient, then substantial haulage could take place for bulk product such as timber and sugar.
  - Domestic transport – courses and awareness are required on transport options available to urban populations such as walking, cycling, high speed trains, sharing transport, motor-cycles (less fuel option). Society needs to be made aware of options otherwise the status quo prevails.
- Specific courses need to be developed on sustainable cemetery management practises in the context of different sectors:
  - One of the major users of land in urban and rural areas of the province is cemeteries due to cultural traditions associated with burial practises. Major investment is required in course development which documents the different burial practises and identifies alternatives

which are acceptable within cultural norms. Examples include vertical burials, incineration and the use of cardboard boxes as opposed to expensive wooden coffins.

- Specific courses need to be developed on sustainable tourism management practises

5 RECOMMENDATIONS

5.1 Enabling Environment

Provincial and municipal government should assume responsibility for ensuring that this ESD guideline is implemented at all levels of society with the long term aim of generating increased levels of 'environmental sustainability'. As noted above, this does not mean that government is required to both develop the materials and administer courses, rather the emphasis should be on regulating and funding the development of courses and providing the space within which NPOs and the private sector is able to develop and apply the courses particularly in the more specialist fields. A further critical issue is for government to provide a framework within which non-formal and formal course materials can be aligned and rationalised in terms of the institutions that provide such courses in terms of content and standards.

5.2 Green Fund

The funding recently raised by the uMgungundlovu District should be utilized to prioritise courses in different sectors and levels. One of the principles in prioritizing projects is to identify the catalytic affect that they will have on a wide range of sectors and issues in society. The funding should be used to develop these courses at both formal and non-formal levels and then to identify specific groups where these courses need to be administered. Clear goals and objectives need to be developed around each course and these need to be submitted for accreditation purposes to ensure standards are met and sustained by the training organisations.

5.3 Alignment

In the formulation and administration of training courses it is essential for the government agencies and the training organisations to create awareness about the training and for businesses and employers to ensure that the training is properly aligned with work-place-based activities. Training that cannot be used directly at places of work tends to undermine credibility of work-place-based training options.

5.4 Popularising Change

A further issue to note in seeking to institute environmental training is that in order to succeed a change of mindset is required. In other words effective training in the environmental field requires working from where trainees are at in their levels of understanding. Effective courses allow trainees to engage with their present understandings and shift their thinking and try out alternative paradigms. One of the key factors in this regard is to popularize issues and concepts thereby

creating new realms of possibility. Thus key issues and areas in the SEA need to be identified for popular support. Major funding drives, aimed at creating awareness and providing direction are required. These should be supported by training aimed at bringing about changes in practices that are not sustainable and by providing trainees with tools to implement sustainable ways of working and managing natural capital.

5.5 Long Haul

It is recognised that designing an effective ESD programme and strategy aimed at achieving substantial societal change in sustainable practices will take many years and significant investment to achieve. Consequently this guideline needs to be a living and evolving process adapting to societal changes and demands as these emerge. The courses and training needs to be focused on all sectors and age groups in society. Consequently private, public and community sectors need to combine resources in the form of a social contract to invest in what amounts to a 'long haul' to achieve the levels of awareness and understanding required to sustain all members of society into the future.