uMgungundlovu District Municipality Strategic Environmental Assessment and Strategic Environmental Management Plan

SEA REPORT

uMGUNGUNDLOVU
UMASIPALA WESIFUNDA
DISTRICT MUNICIPALITY
DISTRIK MUNISIPALITEIT

September 2013

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

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Reference: Tender No. 18/2010

September 2013

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uMgungundlovu District Municipality. December 2012. Strategic Environmental Assessment Report: for the uMgungundlovu District Municipality Strategic Environmental Assessment and Strategic Environmental Management Plan. Isikhungusethu Environmental Services (Pty) Ltd and Zunckel Ecological + Environmental Services, Pietermaritzburg.

Beyond protecting the environment: Ensuring life support

'In *Treading Softly,* this beautifully written, but nevertheless alarming book, Thomas Princen talks about what he calls the "old normal", which includes (mostly implicit, and unquestioned) claims such as the following: that endless economic growth and expansion on a finite planet is not merely possible, but desirable; that as long as there is access, cheap energy will be constantly available; that whatever risks may arise (even unforeseen ones), they can be managed; and that technological, demographic and economic growth will provide the solution to all problems (including problems of a technological, demographic or economic nature)…

'The time for a new normal is, indeed, now. On the environmental front, it begins with the observation, indeed the acceptance, that contemporary trends – environmental, economic, political – lead inescapably to one profound and disturbing conclusion: the era of 'protecting the environment' is over, and the era of ensuring life support has begun … The point is that present patterns of consumption are consuming life-support systems, locally and globally. The point is that what we take for normal is actually excess…

'Which makes it all the more puzzling that the vast majority of people on earth don't seem at all concerned that the planet's resources are NOT being carefully managed at present, even if the economy is receiving abundant attention in an effort to manage it in the interest of "economic security". What is of more fundamental importance? A well-managed economy, or careful management of ecological resources, without which there would not be an economy anyway?'

Extracts from Bert Olivier, Mail & Guardian Thought Leader (2012)

Executive Summary

The Strategic Environmental Assessment (SEA) comprises a number of steps in a process aimed, ultimately, at providing a regulatory framework for use in achieving a sustainable balance between competing demands between the needs for economic growth, social well-being and environmental health. In the case of the uMgungundlovu District, preparation of the SEA has involved generating and assessing the Status Quo, drafting of the Strategic Environmental Assessment (based on an analysis of the material contained in the Status Quo) and the preparation of a Strategic Environmental Management Plan (SEMP).

The Status Quo was compiled on the basis of a number of specialist studies focussed on topics relevant to understanding the relationship between the District's natural capital and its social and economic components. The point of departure for the SEA Report is the desired state of the environment for the District which is captured in the form of a Sustainability Framework which includes a vision, a series of sustainability objectives and criteria, which are designed to address issues raised in the Status Quo. These objectives are further refined through inclusion targets and indicators used to establish a measure of achievement of the objectives. In addition to this is a spatial component which provides maps of the District depicting Environmental Control Zones (ECZs) with associated development guidelines. The ECZs and guidelines are intended as a tool to inform future spatial planning and at the same time screen development applications such that remaining natural capital can be safeguarded and that which has been transformed can be re-instated to a condition that restores its ability to deliver vital ecosystem goods and services.

All three of these components carry a long-term time frame or vision which is aimed at capturing the desired state of the environment, and it is for this reason that they are packaged together in the SEA Report. The SEMP, on the other hand, has a short to medium-term time frame and reflects the most important actions required to move the District towards the desired state of the environment. It is therefore a stand-alone report that will follow the SEA.

The SEA for uMgungundlovu is based on the sustainable development principle which in this context means '**meeting the needs of present generations without compromising the ability of future generations to meet their own needs**'. The concept of sustainability is based on the three capitals namely: natural, social and economic. In the case of uMgungundlovu the evidence suggest that the economic component is drawing heavily on the natural and social in order to survive and in fact grow in the future. The argument on sustainability is that in order to sustain economic activity into the longer term, growth must be within the limits of natural and social capital if it is to be sustained we are to avoid the consequences associated with an unsustainable economy, as evidenced in the level of hardship in the district today. Exceeding the limits of natural capital generally means that resources have to be imported from other regions resulting in a loss of competitive advantage and ultimately market failure and worsening social problems. In this relationship between the three capitals, government has a crucial role to play in seeking to achieve a balance between them.

Context for the UMDM SEA

The SEA has been produced in the context of the Local Agenda 21 principles which include: integration of socio-economic and ecological issues; concern for the long term future; working within ecological limits; and linking local issues with global impacts. Furthermore reference has also been made to the National Strategy for Sustainable Development 2011 (NSSD1) principles to ensure alignment at local level with national policy. These principles include: promoting new social and economic goals based on ecological sustainability; create awareness and understanding of the value of ecosystem goods and services to human well-being; and to monitor and evaluate performance in respect of ecological sustainability. In the NSSD these principles are based on 5 strategic priorities which include: enhancing systems for integrated planning; sustaining ecosystems and the efficient use of natural resources; moving towards a green economy; building sustainable communities; and responding to climate change.

The SEA is also based on the New Growth Path Framework outlined at national level by the Sate President in 2010. This emphasises the role that the Green Economy can play in addressing and alleviating poverty. In this framework it is indicated that the Green Economy has the potential to create substantial job opportunities in the restoration and management of natural resources for the provision of ecosystem goods and services which are sustainable in the long term, unlike opportunities based on extractive industries (e.g. mining) which have limited lifespans and major negative environmental impacts. Cognisance has also been taken of the Provincial Growth and Development Strategy which provides a clear indication of the economic thinking for the Province while providing useful targets and indicators for socio-economic factors.

Also of relevance is SA World Commission on Dams Report (WCD, 2000) which highlights the need for public participation, research of all alternative options prior to the decision to build a dam, siltation issues encompassing catchment management, and catchment management forums role in achieving the SEA objectives. This is of particular relevance in the light of future plans to build dams to augment supply to the uMngeni River system, which may prove to be inefficient options while water conservation and water demand management efficiencies are not what they should be.

Overview of the SEA

This SEA is based on an ***analysis*** of the Status Quo findings and on the perspectives provided by the uMgungundlovu Environmental Forum. In the SEA the issues are analysed in the form of a table where they are identified, interpreted and aligned with those of the Forum and then assessed in terms of their impact on the balance between the three capitals of sustainability. In order to present the analysis in a format that makes for easy reading the various environmental issues have been grouped in the following broad categories:

- Governance and planning;
- Land degradation;
- Water demand and supply;
- Water quality;
- Green economy;

- Sustainable communities; and
- Climate change and air quality.

These categories have not been prioritised but are listed so as to reflect the strategic priorities of the NSSD1, and therefore carry the national strategy context through to the District.

The issues relevant to the above categories are explained within the analysis together with the identification of a series of 'drivers and pressures', i.e. causes; followed by a series of 'impacts'. It is envisaged that this format provides the reader with a clear and detailed picture of the status quo and a platform from which the sustainability objectives have been formulated.

The ***Sustainability Framework*** contained within the SEA depicts the desired sate of the environment and the associated vision, objectives, sustainability criteria, indicators and targets necessary to achieve the desired state within a 30-40 year timeframe. The SEA and Strategic Environmental Management Plan (SEMP) are iterative as two critical parts of the proactive environmental management process. These require regular updating as a means of monitoring how effective the Municipality and its strategic partners (government, business and civil society), have been in achieving its objectives and the progress made towards the desired state of the environment.

As noted, the vision for the SEA has been formulated within the context of Local Agenda 21 principles and the NSSD1. It recognises that the District and provincial visions (IDP and PGDS) dwell on the social and economic capitals to a greater extent (business as usual) and therefore brings about the required sustainability balance by strongly introducing and reinforcing the critically important and strategic role of natural capital in providing for societal wellbeing (quality of life) and economic resilience.

The sustainability objectives have been drafted such that they are fully aligned with those of the NSSD1. The key consideration here is that the SEA must set the limits of what is termed 'Acceptable Change' in order to ensure that societies and their associated economies can be sustained. Given that many of the sustainability criteria (identified in the SEA) appear to have already been exceeded in the uMgungundlovu District, sustainability objectives also include rehabilitation targets and interventions required to recover what has been lost, where possible. Each of the identified issues, objectives and criteria is accompanied by a set of indicators and targets from which a selection can be made for the SEMP to track progress towards the desired state of the environment.

In order to give spatial expression to the Sustainability Framework, ***Environmental Control Zones*** (ECZs) have been developed for the SEA. ECZs provide spatial direction at District level of areas within which development options are recommended, restricted or prohibited. These zones also provide the basis for determining the future spatial development framework of the District. Consequently the SEA should form the basis of the revision of the District and local municipal SDFs and other spatial plans. The ECZs are based primarily on the EKZNW Land Use Management Guidelines and include the following conservation categories:

- **Protected Areas (PAs)**: Protected areas as declaration under NEMPA.
- **Critical Biodiversity Areas (CBAs)**: Natural or near-natural landscapes that include terrestrial and aquatic areas that are considered critical for meeting biodiversity targets and thresholds,

and which safeguard areas required to ensure the persistence of viable populations of species, and the functionality of ecosystems and ecological infrastructure.

- **Terrestrial Ecological Support Areas (ESAs)**: Functional but not necessarily entirely natural terrestrial that are largely required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the critical biodiversity areas. The area also contributes significantly to the maintenance of ecological infrastructure.
- **Aquatic Ecological Support Area**: Functional but not necessarily entirely natural aquatic features that are largely required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the critical biodiversity areas. The area also contributes significantly to the maintenance of ecological infrastructure.
- **Other natural**: All other natural areas not already included in the above categories where the land has not been modified, i.e. ploughed, mined, built on, etc.
- **Modified / Degraded**: Areas with no significant natural vegetation remaining and therefore regarded as having a low biodiversity value (e.g. areas under cultivation).

Land Use Management Guidelines are presented in Table 6: Biodiversity land management guidelines of EKZNW's Land Use Management Guidelines (after EKZNW 2012) of the SEA Report to provide a set of indicators in terms of land use or development options in the columns relative to the Conservation Categories described above. Each of the cells is scored in terms of its compatibility with the various land uses as follows:

1 Compatible activity	Recommended
2 Potential activity	Potential may exist depending on the existing land-use and potential, the current ecological state, and the sustainable nature of the development type in question.
3 Incompatible activity	Not Recommended

It is important to note that while the ECZs and Guidelines are primarily based on EKZNW's Land Use Management Guidelines and with the three options ranging from compatible to incompatible, this SEA seeks to develop a new and innovative way of viewing natural capital from the context of its social and economic value. To this extent where the guidelines direct that development options are incompatible within certain ECZs, it must be recognised that these areas will be providing ecosystem goods and services that are critical to providing the support necessary for the immediately adjacent development options. As such they are critically important for supporting society and the economy and must not be viewed as being only of conservation value.

Guidelines in the SEA for addressing existing developments in the ECZs are intended to be used as a tool to assess the risk posed by existing developments on the ECZs, as well as the risks posed to the developments by virtue of their position in the ECZs, such as those in flood plains. The guidelines contained in the SEA and translated into ECZs have been linked spatially to the district in the form of a series of map overlays culminating in a composite layer. This is complex and needs to be viewed at local level to establish implications for planning purposes and or assessment of development applications. The maps provide the location of the ECZs and the associated conditions of use necessary to maintain and/or rehabilitate the natural capital of the district.

Again it is emphasised that while EKZNW's Land Use Management Guidelines have been used as the primary source from which the ECZs have been determined, and is based on biodiversity considerations, it must be read within the context of natural capital. It must also be noted that this is an evolving discipline and where there appears to be a biodiversity bias, i.e. with Pas and CBAs being the priority areas with greatest level of restriction, these areas are in fact the most valuable in terms of their ability to deliver ecosystem goods and services and thus support to society and the economy.

Other considerations provided for in the ECZs and guidelines are related to agricultural resources, air quality, cultural heritage and slope. Limitations associated with the application of these considerations have been addressed in the report.

Alignment of the District SDF with the SEA

The final section of the SEA is used to provide commentary on the alignment of the District SDF with the SEA, and more specifically with the sustainability indicators and the ECZs and guidelines. This provides the basis for strategic spatial planning of the District by clearly identifying areas where development is compatible, restricted or unsuited to conditions contained in the guidelines and ECZs. Although the initial focus of this exercise was on the spatial element of both the SDF and SEA, it was decided to move this to the SEMP as this alignment will be an immediate requirements. The SEA has therefore focussed on the qualitative comparison of the SDF and the SEA in terms of the extent to which the SDF addresses the sustainability criteria as captured in the SEA's Sustainability Framework. This assessment revealed that while there is a degree of alignment, much work is still required to integrate the sustainability criteria into subsequent iterations of the SDF.

Conclusions

It is clearly evident that natural capital, and its associated natural life support services, in the District are under severe pressure to support and sustain existing social and economic development pressures and unlikely to sustain those planned for the future unless immediate and meaningful steps are undertaken by government, business and civil society to avert the un-avoidable consequences. It is also noted that as climate change predictions begin to manifest, so will the vulnerabilities associated with the current state of the natural environment.

The SEA has been crafted with the view to identifying the key threats which face the District and then through an analytical process, to identify a set of objectives which can be used to achieve a vision based on sustainability and aligned with relevant national and provincial policies.

The future of the District and proposed growth and development strategies does not lie so much in continuing with extractive type activities, but rather to investigate and implement a variety of sustainable or green alternatives which are being applied globally with high levels of success. This requires a change in 'mind set' among the people of the District working together with government, business, and civil society. This plan will only succeed with the full understanding and support of the constituencies of the District.

Definitions

The terminology used in the report has been aligned with the requirements of an SEA as outlined in the NEMA EIA regulations. In addition to this, reference has also been made to the Environmental Management Framework that was developed for the Msunduzi Local Municipality, as this is a piece of work that has been recognised as being of high quality and worthy of reference. Additional definitions have been included to ensure as comprehensive a list as possible and to make the report user-friendly.

1:100 year floodline - A one-hundred-year flood is calculated to be the level of flood water expected to be equalled or exceeded every 100 years on average. The 100-year flood is more accurately referred to as the 1% annual exceedance probability flood, since it is a flood that has a 1% chance of being equalled or exceeded in any single year. Similarly, a flood level expected to be equalled or exceeded every 50 years on average is known as a fifty-year flood. Based on the expected flood water level, a predicted area of inundation can be mapped out. This floodplain map figures very importantly in building permits, environmental regulations, and flood insurance.	http://en.wikipedia.org/
Agriculture 1 - A zone that provides for land and buildings where the primary activity is intensive and extensive agricultural production of crops, livestock or products.	CoGTA (2011)
Agriculture 2 - A zone that provides for land used for low intensity small scale agricultural practices in association with other related uses in Traditional areas and may include market gardening, woodlots, small scale production of crops and livestock.	CoGTA (2011)
Agriculture, Forestry - A zone that provides for the growing of trees with valid permission from DWA.	CoGTA (2011)
Agriculture, Special - A zone that provides for farming that comprises a substantial number of physical development/buildings such as greenhouses, poultry, windfarms etc.	CoGTA (2011)
Agriculture, Urban - A zone that provides for land allocated in urban areas for agricultural purposes. This could be utilized for small scale agricultural production, market gardening and community gardens.	CoGTA (2011)
Attribute - means the quality ascribed to an element in the environment that distinguishes it in character, form or nature from other elements in the environment.	NEMA – GNR 547 Interpretation
Basic human needs - A comprehensive set of fundamental human needs that are culturally and historically universal, non-overlapping, non-substitutable, complimentary to one another, and must be satisfied on a continual basis. They are: subsistence, protection, affection, idleness, identity, freedom, creativity, participation and understanding. This list of basic human needs was created by the Chilean economist, Manfred Max-Neef, and is used to define human needs for the fourth system condition of The Natural Step.	
Benthic diatom sampling - Diatoms are a group of eukaryotic algae and are primary producers in the aquatic ecosystem. Diatoms are affected by the chemical and physical make up of their surroundings. South Africa has a very good record of diatoms and their physical and chemical tolerances, making them useful for inferring integrated water quality conditions and hence river health classes. Diatoms are also useful for determining historic water quality as their silica fistulas remain behind once they die, leaving a record of past conditions. Additionally benthic diatoms are not limited by habitat and can be collected from several different mediums such as stones, vegetation and in some cases even from sediments.	www.groundtruth.co.za/Services/River-Health-and-Water-Quality/Page-3.html
Buffer Zone – within the context of environmental management and biodiversity conservation a buffer zone is a strip of land that surrounds a protected area or a natural feature such as a river, wetland or patch of indigenous vegetation with the intent of providing additional protection against negative influences and/or dynamics that may emanate adjacent activities and/or land	

uses, particularly if these are incompatible with the persistence of ecological functioning of the area that is being afforded protection. Further to the above the following definition was extracted from IEM guidelines issued by DEA when the IEM concept was first launched in 1992: A buffer must be able to accommodate dynamic processes over a long time frame. Although a buffer cannot accommodate inexorable expansion, it is important that it accommodates processes of contraction *and* expansion, within which there is ongoing regeneration. The smaller the buffer, the greater the restraint on these processes. A buffer should allow for effective management of the forest edge and its ecotone – (or whichever eco-system it is buffering). Following the precautionary principle, where activities are proposed which could cause land degradation, or other serious negative impacts, which will be long-term or permanent beyond the life span of the development proposed, buffers should extend to a minimum 200 meters. The criterion motivating the widest buffer must be applied in all cases without exception.	
Carbon Emission Reduction Target (CERT) - The main objective of CERT is carbon emission reduction and tackling climate change with a focus on energy savings. This is an obligation on energy suppliers to improve domestic energy efficiency, which will replace the Energy Efficiency Commitment (EEC). There are also plants to include microgeneration and measures to encourage behaviour within the scope of CERT. South Africa reiterates that it will take nationally appropriate mitigation action to enable a 34% reduction below the "Business As Usual" emissions growth trajectory by 2020, dependent on the provision of financial resources, the transfer of technology, and capacity building support.	South African National Climate Change Response Strategy, September 2004
Carbon footprint - A carbon footprint is the total set of greenhouse gas (GHG) emissions caused by an organisation, event, product, person or nation. Greenhouse gases can be emitted through transport, land clearance, and the production and consumption of food, fuels, manufactured goods, materials, wood, roads, buildings, and services. For simplicity of reporting, it is often expressed in terms of the amount of carbon dioxide, or its equivalent of other GHGs, emitted. An individual's, nation's or organisation's carbon footprint can be measured by undertaking a GHG emissions assessment. Once the size of a carbon footprint is known, a strategy can be devised to reduce it, e.g. by technological developments, better process and product management, changed Green Public or Private Procurement (GPP), carbon capture, consumption strategies, and others. The mitigation of carbon footprints through the development of alternative projects, such as solar or wind energy or reforestation, represents one way of reducing a carbon footprint and is often known as Carbon offsetting.	
Catchment - The area contributing surface water flow to a point on a drainage or river system. Can be divided into sub-catchments.	
Dam - when used in these Regulations means any barrier dam and any other form of impoundment used for the storage of water;	NEMA – GNR 544 Definitions
Desirable activities - refer to activities which are considered to be more compatible with the desired state of the environment for the area. Development that conforms to the desired activity/ies may be supported by authorities subject to acceptable site specific impact mitigation. Development that conforms to desired activity/ies is not however exempt from meeting any legal requirements such as environmental or development authorizations from relevant government departments or municipal planning processes. These applications may however be facilitated by authorities based on information obtained from the EMF in terms of the	Msunduzi EMF

sensitivities of the proposed development site.	
Development – refers to any activity that transforms the natural environment in any way and to any degree, and can range from the relatively benign extensive cattle grazing, through to intensive urban infrastructure.	
DWA Blue Drop standards – refers to the ability of municipal water treatment works to supply potable water.	
DWA Green Drop standards – refers to the ability of municipal waste water treatment works to treat sewage.	
DWA Special Limit Values (SLV) - Department of Water Affairs' (DWA) Special Limits are required for discharge entering a Ramsar Site. The SLV has more stringent pH, COD, suspended solids, ammonia and nitrate levels than the more commonly applicable **General Limit Values (GLV)**. The purpose of the Special Standard is to limit nutrient level's discharged to pristine natural waters where recreational use or conservation is of overriding concern.	
EcoClassification - the term used for the Ecological Classification process - refers to the determination and categorisation of the Present Ecological State (PES; health or integrity) of various biophysical attributes of rivers relative the natural or close to the natural reference condition. The purpose of the EcoClassification process is to gain insights and understanding into the causes and sources of the deviation of the PES of biophysical attributes from the reference condition. This provides the information needed to derive desirable and attainable future ecological objectives for the river. In essence the EcoStatus represents an ecologically integrated state representing the drivers (hydrology, geomorphology, physico-chemical) and responses (fish, aquatic invertebrates and riparian vegetation). The EcoClassification process is an integral part of the **Ecological Reserve** determination method and of any **Environmental Flow Requirement** method. Flows and water quality conditions cannot be recommended without information on the predicted resulting state, the Ecological Category. The following index models were developed following a Multi Criteria Decision Making Approach (MCDA): • Hydrological Driver Assessment Index (HAI) • Geomorphology Driver Assessment Index (GAI) • Physico-chemical Driver Assessment Index (PAI) • Fish Response Assessment Index (FRAI) • Macro Invertebrate Response Assessment Index (MIRAI) • Riparian Vegetation Response Assessment Index (VEGRAI) Each of these models result in an Ecological Category expressed in terms of A to F where A represents the close to natural and F a critically modified condition.	River Ecoclassification Manual for Ecostatus Determination produced by the Water Research Commission and DWAF (Kleynhans et al., 2007).
Ecological infrastructure - refers to functioning ecosystems that deliver valuable services to people and the environment - previously referred to as ecosystem goods and services areas.	Driver *et al* (2012)
Ecological integrity - The quality of a natural unmanaged or managed ecosystem in which the ecological processes are sustained, with genetic, species and ecosystem diversity assured for the future. An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes.	www.montanarestoration.org/principles-definitions
Ecological reserve - In South African terms, the quantity component of the ecological Reserve for rivers is defined as a set of flows associated with a range of assurances, where assurance is the	Hughes, 2008

equivalent of the percentage time that any specific flow is expected to be equalled or exceeded. The assurance rule tables are therefore directly equivalent to flow duration curves that are frequently used to summarise time series of hydrological data. While there are many different methods that can be used to determine an ecological Reserve, the outputs generated in South Africa are always the same and have been standardised.	
Ecosystem Goods & Services - The quantifiable goods and services that an ecosystem provides to humans, including consumables and non-consumables. Resource economists assign monetary values to these goods and services to estimate the economic value of a healthy ecosystem. Examples of ecosystem goods and services include but are not limited to timber, tourism, recreation opportunities, hunting and fishing, clean water, flood attenuation, healthy fish and wildlife populations, productive soils, pollination of crops and native vegetation, and fulfillment of people's cultural, spiritual, intellectual needs.	www.montanarestoration.org/principles-definitions
Estuary - means a body of surface water that is part of a water course that is permanently or periodically open to the sea in which a rise and fall of the water level as a result of the tides is measureable at spring tides when the water course is open to the sea, or in respect of which the salinity is measurably higher as a result of the influence of the sea.	Integrated Coastal Management Act (ICMA)
Indicators - Measures used to assess whether an organisation is moving towards its vision and goals.	
Indigenous vegetation - refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years;	NEMA – GNR 544 Definitions
Invasive alien species - a species not native to the region or country, often with the potential for out-competing native species. The consequences of infestations of alien invasive plants species is a loss of indigenous species, reduced ecosystem health and functionality, loss of ecosystem goods and services, a loss of resilience and increased vulnerability.	www.eiatoolkit.ewt.org.za/glossary.html
Integrated Environmental Management Plan (IEMP) – The IEMP takes the long-term sustainability objectives and articulates actions that can help the relevant implementing agencies to work towards the achievement of these objectives. A very important principle in the development of an IEMP is that those that will be responsible for implementation need to actively participate in its compilation through workshops facilitated by the service provider.	
Interested and Affected Party - an individual or organisation with a personal or professional interest in the proposed development (e.g. a wildlife-protection organisation.) Certain individuals and groups, specified by the regulations, are automatically registered as Interested and Affected Parties. However, any individual or entity can register with the Environmental Assessment Practitioner and or Applicant to be an registered as an Interested and Affected Party.	www.eiatoolkit.ewt.org.za/glossary.html
Main Stem - the primary downstream segment of a river, as contrasted to its tributaries	http://en.wikipedia.org/wiki/Main_stem
Natural Capital - The natural resource stocks from which resources useful for livelihoods are derived e.g. water, land, environmental resource.	
NEMBA TOPS - National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): publication of lists of critically endangered, endangered, vulnerable and protected species.	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (GNR 151, 23 February

	2007)
Old Growth - Old growth forests are considered ecosystems that are distinguished by old trees and related structural attributes. They encompass the later stages of stand development that typically differ from earlier stages in characteristics such as tree age, tree size, number of large trees per acre, and basal area. In addition, attributes such as decadence, dead trees, the number of canopy layers and canopy gaps are important but more difficult to describe because of high variability.	www.montanarestoration.org/principles-definitions
Payments for Ecosystem Services (PES), also known as Payments for Environmental Services (or Benefits) broadly defined, is the practice of offering incentives to farmers or landowners in exchange for managing their land to provide some sort of ecological service. These programmes promote the conservation of natural resources in the marketplace. Ecosystem services have no standardized definition, but might broadly be called "the benefits of nature to households, communities, and economies," or, more simply, "the good things nature does." Twenty-four specific ecosystem services were identified and assessed by the Millennium Ecosystem Assessment, a 2005 UN-sponsored report designed to assess the state of the world's ecosystems. The report defined the broad categories of ecosystem services as food production (in the form of crops, livestock, capture fisheries, aquaculture, and wild foods), fibre (in the form of timber, cotton, hemp, and silk), genetic resources (biochemicals, natural medicines, and pharmaceuticals), fresh water, air quality regulation, climate regulation, water regulation, erosion regulation, water purification and waste treatment, disease regulation, pest regulation, pollination, natural hazard regulation, and cultural services (including spiritual, religious, and aesthetic values, recreation and ecotourism). Notably, however, there is a "big three" among these 24 services which are currently receiving the most money and interest worldwide. These are climate change mitigation, watershed services and biodiversity conservation, and demand for these services in particular is predicted to continue to grow as time goes on. PES programs are voluntary and mutually beneficial contracts between consumers of ecosystem services and the suppliers of these services. The party supplying the environmental services holds the property rights over an environmental good that provides a flow of benefits to the demanding party in return for compensation. The beneficiaries of the ecosystem services are willing to pay a price that is lower than their welfare gain due to the services. The providers of the ecosystem services are willing to accept a payment that is greater than the cost of providing the services. These programs are practical examples of the Coase theorem. According to the Coase Theorem, environmental externalities can be solved through private bargaining between people who are willing to pay in order to reduce an environmental hazard and people willing to accept compensation in order to reduce the activity that generates the environmental burden.	http://en.wikipedia.org/
Perennial and non-perennial rivers – refers respectively to rivers that flow permanently throughout the year and those that flow seasonally.	
Precautionary principle - or precautionary approach states if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is not harmful falls on those taking an act.	http://en.wikipedia.org/wiki/Precautionary_principle
Public Participation - the process by which the general public are able to become involved in the EIA process, a method of raising issues that may otherwise be overlooked in the process.	www.eiatoolkit.ewt.org.za/glossary.html
Rainwater harvesting or rainwater use system - A system that collects rainwater from where it falls rather than allowing it to drain away. It includes water that is collected within the boundaries of a property, from roofs and surrounding surfaces.	
Reference Condition – the 'standard' or 'benchmark' that measures the structural and functional components of a biological assemblage and how close is the taxonomic make-up (species and	

numbers) to the natural condition prior to disturbance.	
Riparian buffer - A riparian buffer is a vegetated area (a "buffer strip") near a stream which partially protects a stream from the impact of adjacent land uses. It plays a key role in increasing water quality in associated streams, rivers, and dams, thus providing environmental benefits. With the decline of many aquatic ecosystems due to agricultural production, riparian buffers have become a very common conservation practice aimed at increasing water quality and reducing pollution.	http://en.wikipedia.org/
Riparian zone - A riparian zone or riparian area is the interface between land and a river or stream. Riparian is also the proper nomenclature for one of the fifteen terrestrial biomes of the earth. Plant habitats and communities along the river margins and banks are called riparian vegetation, characterized by hydrophilic plants. Riparian zones are significant in ecology, environmental management, and civil engineering because of their role in soil conservation, their habitat biodiversity, and the influence they have on fauna and aquatic ecosystems, including grassland, woodland, wetland or even non-vegetative. In some regions the terms riparian woodland, riparian forest, riparian buffer zone, or riparian strip are used to characterize a riparian zone. The word "riparian" is derived from Latin ripa, meaning river bank. The riparian is an important feature of a wetland because it allows characterization of the wetland's overall health.	http://en.wikipedia.org/
Role player - It is critical that the development of both the SEA and IEMP include significant consultation with both role players and stakeholder. The distinction between these two groups is that role players are representatives of organs of state who have a legal mandate to contribute to the process and implementation of the IEMP. Role players should therefore be seen as 'strategic partners' as without their commitment to the both the process and implementation of the IEMP, the project will fail.	
SASS river health biomonitoring - The assessment of biota in rivers is a widely recognised means of determining the condition or 'health' of rivers. Benthic macroinvertebrates, in particular, are recognised as valuable organisms for bioassessments, due largely to their visibility to the naked eye, ease of identification, rapid life cycle often based on the seasons and their largely sedentary habits. Numerous bioassessment techniques have been developed over the last three decades, varying in complexity and region of implementation. South Africa has an exemplary history in this field, culminating in the refinement of invertebrate and other techniques and their application in a National River Health Programme. SASS (South African Scoring System) is a highly successful method developed by Chutter (1994).	Dickens & Graham, 2002.
SEA - SEA is a process to ensure that significant environmental effects arising from policies, plans and programmes are identified, assessed, mitigated, communicated to decision-makers, monitored and that opportunities for public involvement are provided. SEA has become an important instrument to help to achieve sustainable development in public planning and policy making. The importance of SEA is widely recognised. Particular benefits of SEA include: • To support sustainable development; • To improve the evidence base for strategic decisions; • To facilitate and respond to consultation with stakeholders; • To streamline other processes such as Environmental Impact Assessments of individual development projects. Conducting an SEA is an iterative process which should be carried out alongside the development of the plan or programme.	www.sea-info.net/content/overview.asp?pid=94
Red Listed species - The IUCN Red List of Threatened Species (also known as the IUCN Red List or	http://en.wikipedia.or

Red Data List), founded in 1963, is the world's most comprehensive inventory of the global conservation status of plant and animal species. The International Union for Conservation of Nature (IUCN) is the world's main authority on the conservation status of species. A series of Regional Red Lists are produced by countries or organizations, which assess the risk of extinction to species within a political management unit.	g
Stakeholder - It is critical that the development of both the SEA and IEMP include significant consultation with both role players and stakeholder. Stakeholders are those who either have an interest in the project and/or will be affected by its implementation. These include groupings such as conservancies, organised business, organised agriculture, ratepayers associations, catchment management forums, etc.	
SuDS (Sustainable Drainage Systems) - Sustainable drainage systems or sustainable (urban) drainage systems: a sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques (may also be referred to as SuDS). The idea behind SUDS is to try to replicate natural systems that use cost effective solutions with low environmental impact to drain away dirty and surface water run-off through collection, storage, and cleaning before allowing it to be released slowly back into the environment, such as into water courses. This is to counter the effects of conventional drainage systems that often allow for flooding, pollution of the environment - with the resultant harm to wildlife - and contamination of groundwater sources used to provide drinking water. The paradigm of SUDS solutions should be that of a system that is easy to manage, requiring little or no energy input (except from environmental sources such as sunlight, etc.), resilient to use, and being environmentally as well as aesthetically attractive. Examples of this type of system are reed beds and other wetland habitats that collect, store, and filter dirty water along with providing a habitat for wildlife. Originally the term SUDS described the UK approach to sustainable urban drainage systems. These developments may not necessarily be in "urban" areas, and thus the "urban" part of SUDS is now usually dropped to reduce confusion. Other countries have similar approaches in place using a different terminology such as Best Management Practice (BMP) and Low Impact Development in the United States[2], and Water Sensitive Urban Design in Australia . SuDS use the following techniques: • source control • permeable paving such as pervious concrete • storm water detention • storm water infiltration • evapo-transpiration (e.g. from a Green roof) A common misconception of SUDS systems is that they reduce flooding on the development site. In fact the SUDS system is designed to reduce the impact that the surface water drainage system of one site has on other sites. For instance, sewer flooding is a problem in many places. This happens when flows entering a sewer exceed its capacity and it overflows. The SUDS system aims to minimise or eliminate discharges from the site, thus reducing the impact, the idea being that if all development sites incorporated SUDS then urban sewer flooding would be less of a problem. Unlike traditional urban stormwater drainage systems, SUDS can also help to protect and enhance ground water quality.	www.ciria.org.uk/suds/glossary.htm
Sustainability - The ability of any enduring social or natural system to continue functioning into the indefinite future without being forced into decline through exhaustion of key resources. In a sustainable system, the demands placed upon the environment by people and commerce can be met without reducing the capacity of the environment for future generations. Essentially, it is	www.montanarestoration.org/principles-definitions

recognized that economic security, community vitality, equity, quality of life, and commitment to the welfare of future generations depends upon maintaining and restoring ecological integrity.	
Threatened Species - The World Conservation Union (IUCN) is the foremost authority on threatened species, and treats threatened species not as a single category, but as a group of three categories, depending on the degree to which they are threatened: Vulnerable species; Endangered species; and Critically endangered species. Less-than-threatened categories are Near Threatened, Least Concern, and the no longer assigned category of Conservation Dependent. Species which have not been evaluated (NE), or do not have sufficient data (Data Deficient) also are not considered "threatened" by the IUCN.	http://en.wikipedia.org
Watercourse - means (a) a river or spring; (b) a natural depression in which water flows regularly or intermittently; (c) a wetland, lake or dam into which, or from which, water flows; and (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks;	NEMA – GNR 544 Definitions
Wetland - means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.	NEMA – GNR 544 Definitions
Wetland Buffer Areas - Wetland buffer areas are those areas identified in the status quo phase of this study as confidence buffers and a development buffer of 30m has been applied to them, regardless of their site-specific conditions and development type. This approach is potentially problematic and so the biophysical factors and interactions between them are the criteria against which buffers must be calculated and motivated. The criterion motivating the widest buffer must be applied in all cases without exception.	http://en.wikipedia.org/
WET-EcoServices - one of the tools which were developed as part of the WET-Management Series. WET-EcoServices is used to assess the goods and services that individual wetlands provide, thereby aiding informed planning and decision-making. It is designed for a class of wetlands known as palustrine wetlands (i.e. marshes, floodplains, vleis or seeps). The tool provides guidelines for scoring the importance of a wetland in delivering each of 15 different ecosystem services (including flood attenuation, sediment trapping and provision of livestock grazing). The first step is to characterise wetlands according to their hydro-geomorphic setting (e.g. floodplain). Ecosystem service delivery is then assessed either at Level 1, based on existing knowledge, or at Level 2, based on a field assessment of key descriptors (e.g. flow pattern through the wetland).	Wetlands Research Programme: Wetland Rehabilitation
WET Health – one of the tools which were developed as part of the WET-Management Series. WET-Health assists in assessing the health of wetlands using indicators based on geomorphology, hydrology and vegetation. For the purposes of rehabilitation planning and assessment, WET-Health helps users understand the condition of the wetland in order to determine whether it is beyond repair, whether it requires rehabilitation intervention, or whether, despite damage, it is perhaps healthy enough not to require intervention. It also helps diagnose the cause of wetland degradation so that rehabilitation workers can design appropriate interventions that treat both the symptoms and causes of degradation. WET-Health is tailored specifically for South African conditions and has wide application, including assessing the Present Ecological State of a wetland for purposes of Ecological Reserve determination in terms of the National Water Act, and for environmental impact assessments. There are two levels of complexity: Level 1 is used for assessment at a broad catchment level and Level 2 provides detail and confidence for individual wetlands based on field assessment of indicators of degradation (e.g. presence of alien plants). A basic tertiary education in agriculture and/or environmental sciences is required to use it effectively.	Wetlands Research Programme: Wetland Rehabilitation

WET-Management Series - The series includes documents that provide background information about wetlands and natural resource management, tools that can be used to guide decisions around wetland management, and an evaluation of rehabilitation outcomes in a number of case studies.	Wetlands Research Programme: Wetland Rehabilitation
Undesirable activities - refer to activities that are considered contrary to the desired state of the environment and/ or are likely to result in significant impact to the environment. Should a proposed development constitute an undesirable activity, this will not preclude the developer from making an environmental or development authorisation application. It will however be critical that, prior to the authorisation of any development that constitutes an undesirable activity, the Precautionary Principle be applied requiring the developer to demonstrate that all potential impacts can be adequately assessed and mitigated to ensure that the development does not have a negative effect on the environment. As above this terminology may be used interchangeably with the term non-preferred land use which is an accepted planning term.	Msunduzi EMF

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uMgungundlovu SEA 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 and Afzelia Environmental Consulting, 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 Ground Truth: 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 in a separate Map Book of this report and depict the various categories of biodiversity and ecological importance as specified by the Biodiversity Sector Plan already mentioned above. The focus of this report is on these zones and the provision of guidelines that recommend the management required to reinstate and maintain their integrity, as well as the listing of activities that are either appropriate or inappropriate. 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.

1.2 How to use this document

As has already been stated, the SEA Report has been compiled on the basis of the understanding of the current state of the environment as derived from the Status Quo Report and provides substance for the vision for the Desired State of the Environment. It is thus primarily a tool box to be used by the UMDM and its strategic partners to move from the current state of the environment, i.e. one in which there is an unhealthy relationship between the three capitals of sustainability, to the desired state where sustainability becomes the basis for planning and decision-making. The tool box has three essential elements, namely the sustainability framework, the environmental control zones and the guidelines.

The sustainability framework, as detailed and discussed in Section 3, holds a long-term vision and provides the basis from which more specific and shorter-term actions can be derived in the form of the SEMP, another tool development process that is to follow on completion of the SEA.

The spatial component of the SEA Report, namely the environmental control zones (Section 4), provides District and Local Municipal, and strategic partner decision-makers with a pro-active tool to align other planning tools such as the SDFs, IDPs and LUMS. The spatial component also allows for the assessment of the sustainability of development applications. Working in conjunction with this spatial component is the qualitative interpretation presented as guidelines which provides further detail to assist with the interpretation of development applications as being either a compatible activity, a potential activity, or an incompatible activity.

An additional tool has been provided (Section 5) which provides an indication of the extent to which the UMDM SDF aligns with the sustainability criteria of the SEA. It is essential that in future revisions of both the UMDM SDF and LM SDFs that the SEA environmental control zone maps and guidelines are used as a basis for such revisions. It must be noted that the discussion on this alignment is limited due to the scale that the work has been undertaken. Therefore it lacks the required detail for alignment at the local municipal scale and this will need to be done when these planning mechanisms are revised.

More specifically the tools in this tool box may be applied as detailed in Table 1

Table 1: An indication of the primary application of the SEA tools

TOOL	USED BY	FOR	WHEN
Sustainability framework	UMDM and Strategic Partners	Development and regular revision of the SEMP	As soon as the SEA is complete and then at 3 – 5 yearly intervals.
ECZs and Guidelines	UMDM and Strategic Partners	Alignment of policies and plans and the preliminary appraisal of development applications	As soon as the SEA is complete and then according to the relevant policy and planning timeframes.
SEA/SDF alignment	UMDM and Strategic Partners	Preparation and review of the SDF	Preparation every 5 years and annual review

1.3 Sustainability

As the core of the SEA is the Sustainability Framework it is necessary to provide some rationale as to why the concept of sustainability is relevant within the District Municipalities area of jurisdiction. This is also necessary to ensure shared understanding of this concept and its component parts. A brief discussion on this topic is followed by some insights into the current state of natural capital in the District well as some perspectives of the relationship between the SEA and poverty.

1.3.1 The Concept of Sustainable Development

This concept has evolved significantly since it emerged in the report "Our Common Future", which was an outcome of the World Commission on Environment and Development that was chaired by the then Prime Minister of Norway, Gro Harlem Brundtland, in 1987. The primary reason for its emergence was an attempt to better understand the relationship between the natural environment and development in an effort to promote what has come to be known as "sustainable development". The commission defined sustainable development as follows (Romuald, 2008):

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

A presentation at the Green Economy Research Conference hosted by the KZN Dept. of Economic Development and Tourism (DEDT) in February 2012 entitled "Beyond GDP: Measuring Sustainability" by Peet Du Ploy of Trade and Industrial Policy Strategies (TIPS), provided an advanced illustration of sustainability as seen in Figure 1. This figure illustrates the disproportionate relationship between the three capitals, i.e. natural, economic and social, with the economic component making significant drawings on both the natural and the social while giving little back. It must be acknowledged that for any society to be sustainable, the economic component needs to function within the bounds of both the natural and the social components. Where this is not the case the imbalance will cause negative impacts on all concerned and market failure will begin to surface as a dominant feature, with resilience being replaced by increasing vulnerability.

In the case of the UMDM and adjacent areas, particularly the eThekwini Metro, this situation is already evident in that water resources are highly stressed, both in terms of available volumes for consumption and water quality. Massive investments are now required in order to alleviate the situation through the introduction of hard engineering solutions as reported in the KZN Water Reconciliation Study (DWAF, 2009). What is clear from this strategy is that investments into the natural capital, i.e. the water catchments and their ability to receive precipitation and deliver runoff into the drainage systems, have not been factored in. Within the context of sustainability, the strategy thus perpetuates the negative trajectory and does little to introduce measures that will reduce vulnerability and help to re-instate resilience.

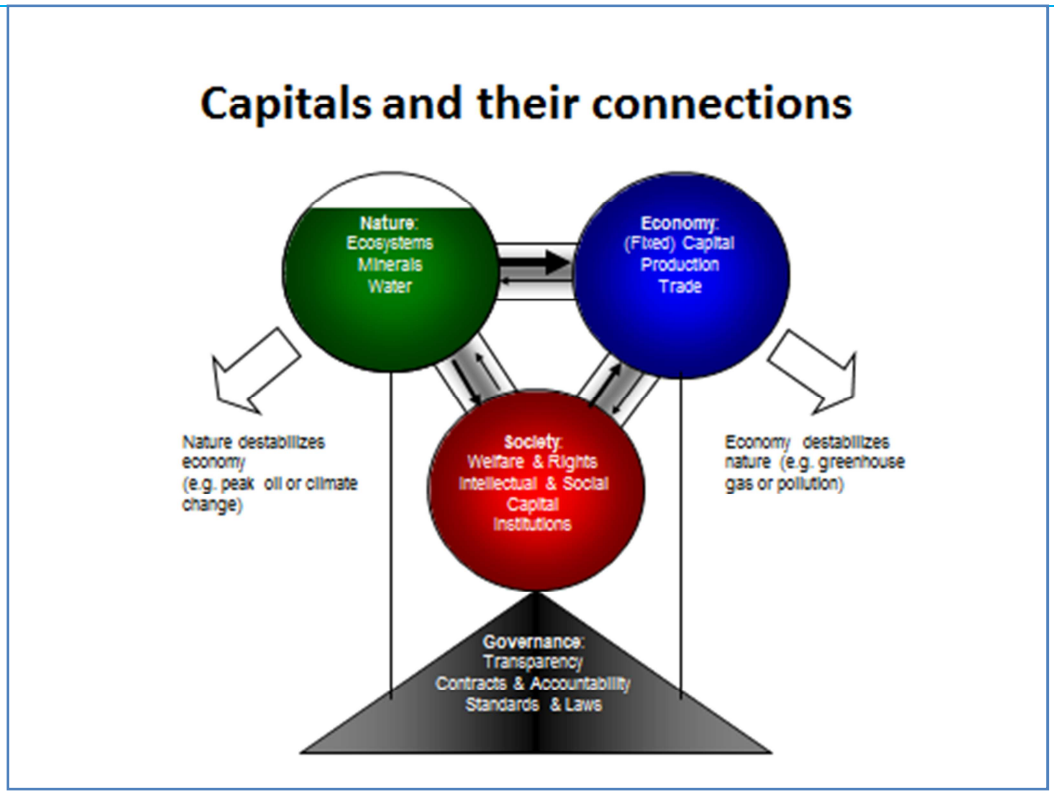

Figure 1: An illustration of the relationships between the three capitals of sustainability and the role of governance in maintaining the balance (source – Peet Du Plooy of TIPS).

In relation to the illustration provided in Figure 1 this SEA must be seen as the fulcrum upon which the District's ability to achieve sustainable development is balanced. The SEA and SEMP, have the potential to influence the way in which development decisions are taken in the District. In light of the emphasis that is being placed on the need for growth and development within a system whose natural capital has been overdrawn, the importance and urgency of this role is significant.

In addition to these perspectives it is also true that the District is very strategically placed from a pure economic perspective in that it has the N3 Corridor passing through into the interior. Other related infrastructure that lends weight to the strategic importance of its locality in the KZN economic landscape is proximity to the ports of Durban and Richard's Bay, as well as the imminent expansion of the Durban port by the development of the dug-out port at the old airport site. An indication of the extent of the development opportunities as seen from the perspective of the Provincial Growth and Development Strategy (PGDS) is provided in Figure 2 (Brookes, 2012).

It is with the above information that is best possible to understand the relevance of the concept of sustainability and the role that this SEA can play in ensuring that products such as the PGDS, take full cognisance of the value of natural capital and the critically important role that it plays in underpinning the social and economic wellbeing of the people of this and surrounding Districts/Municipalities. Reference to Figure 1 places the SEA in the position of the governance fulcrum, i.e. ensuring that sustainable development is achieved through the maintenance of the correct relationships between the three capitals.

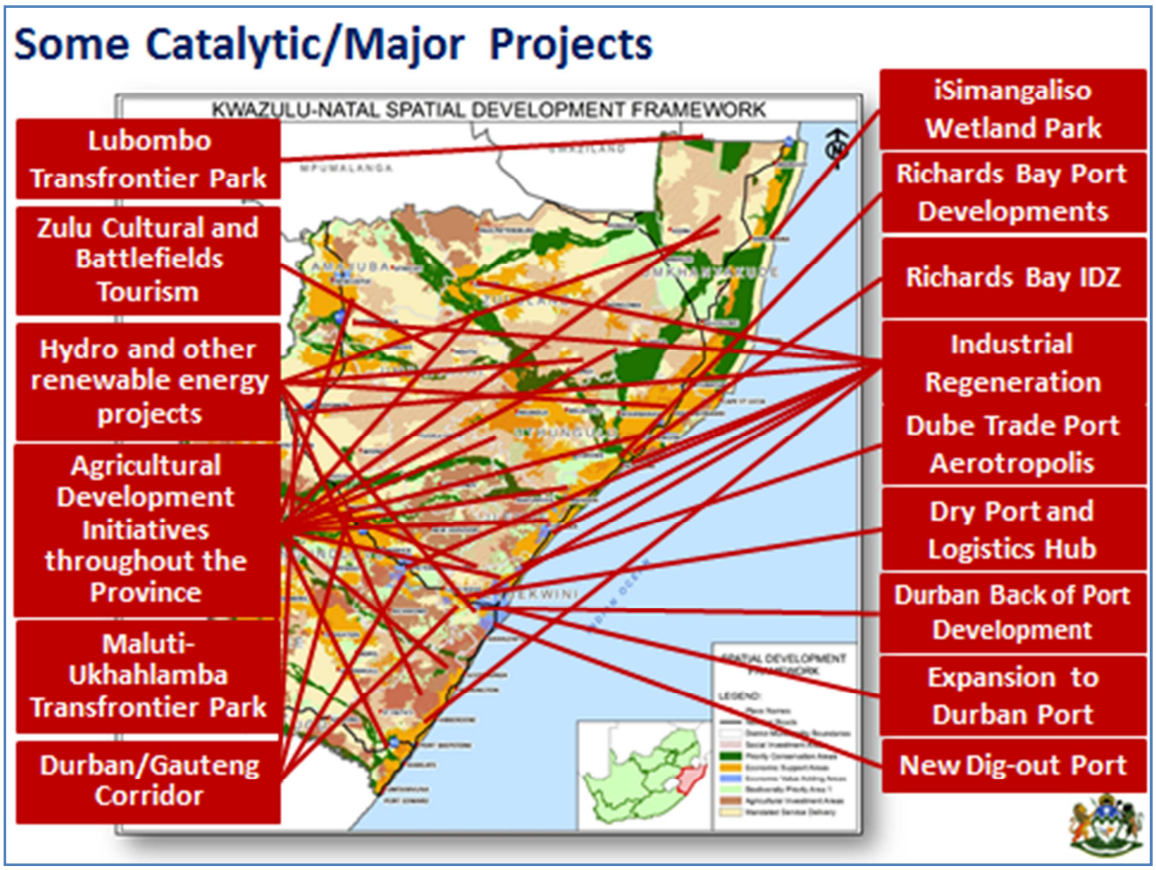

Figure 2: Development opportunities according to the KZN Provincial Growth and Development Strategy 2012.

From a social perspective data from the 2001 NC and 2007 CS suggests that the district municipality has experienced an annual population growth of 1.1% between 2001 and 2007 (StatsSA, 2001 and 2007). In 2001 the population was recorded as 927842 people and in 2007 as 988839 people. The population in uMgungundlovu represents 2% of the national population and 10% of the provincial population (McCarthy, 2008).

1.3.2 The State of the District's Natural Capital

The KZN Department of Economic Development and Tourism (DEDT) recently commissioned a Spatial Economic Development Strategy for the Province, which included an assessment of the extent to which natural capital is able to underpin the economic drivers. This work was conducted in collaboration with EKZNW who had already commissioned work to place a monetary value on the Province's natural capital (EKZNW, 2011a). Some key findings emanated from this work and they are that the current value of the Province's natural capital is just less than R150 billion. By way of comparison, the values for the KZN provincial gross domestic product and provincial budget are R204 billion (2009) and R70 billion (2010) respectively. An additional comparison was made based on the current trends of both natural capital transformation, or loss, and degradation; and these show that the value of natural capital in 2021 will be just more than R 132 billion, and in 2031 it will be less than R 90 billion. It must be noted that these figures do not include the societal costs that will be associated with the ramifications of continued natural capital loss and degradation, so while value will be lost, the costs associated with these ramifications will increase significantly.

Building on this work, the DEDT study used all 47 land cover types recognised in the Province and many of the same experts who participated in the EKZNW study, to determine the ability of each land cover type to produce ecosystem goods and deliver ecosystem services. In this study the implications of natural capital transformation were considered with the introduction of negative score categories where ecoservice potential had been lost due to the nature of the transformation and the land cover types (DEDT, 2012). The outcome of this process as related to the District is captured in Table 2 and Table 3.

Table 2: The extent of each ecoservice category score within the uMgungundlovu District

Extent of cover	ECOSERVICE CATEGORY SCORES									
	-3	-2	-1.5	-1	-0.5	0	1	1.5	2	3
Hectares	1236.16	179494.3	45576.28	722.08	130891.5	0	80447.1	54582.68	410191.48	0
%	0.14%	19.87%	5.05%	0.08%	14.49%	0.00%	8.91%	6.04%	45.42%	0.00%

Table 3: The extent of broad land cover categories as a percentage of the uMgungundlovu District

LAND COVER CATEGORY	% COVER
Natural - freshwater	0.81%
Natural - marine	0.00%
Natural terrestrial	47.63%
Natural terrestrial degraded	4.97%
Agriculture - active including commercial and subsistence	37.25%
Agriculture - fallow including commercial and subsistence	0.95%
Mining	0.02%
Settlement (including recreation and infrastructure)	8.38%

From the above it can be seen that the situation with regards to the level of land transformation in the District shows an unhealthy level of more than 50% natural capital that has been either completely lost, or transformed to the extent that its ability to produce and deliver ecoservices has become significantly compromised. The District carries the greatest cover of active agriculture, excluding extensive livestock grazing; while the area under settlement is the third highest in the Province.

To further illustrate the situation with regard to the District's poor state of natural capital, just less than 40% of the surface area has not only lost its ability to produce ecosystem goods, but is delivering dis-services. The latter are of particular significance as these manifest in massive societal costs within both this District as well as in the eThekwini Metro. Such costs are related to for example, disaster management around floods, the costs of health services related to water borne diseases from systems with significantly reduced states of river health, and the increased costs of the reliance on engineering solutions to address these problems.

An additional example that can be used to illustrate the value of natural capital management is that eThekwini are investigating the potential of desalination, inter-basin transfers and waste water recycling as measures to satisfy rapidly increasing water demand which currently exceed supply. Each of these options will cost at least in the region of R10/m^3 of water produced (Spring grove Dam water is currently around R15/m^3); while the cost of maintaining the water catchments in the

Drakensberg and foothills amounts to approximately R2/m^3. Management of natural capital for the delivery of strategically important ecoservices is thus the 'least cost option' and has the potential to significantly reduce the cost of and dependency on hard engineering solutions.

The spatial expression of these findings is captured in Figure 3, while an illustration of the strategic linkages between ecosystem goods and services, emanating from intact natural capital, and society and the economy as developed by the Millennium Ecosystem Assessment is provided as Figure 4. The reader is encouraged to take time to review these two figures as they provide good insight to understanding both the status quo of the UMDM as well as the valuable role that ecosystem goods and services play in providing vital life support to society and the economy.

To provide additional insight into the concept of ecosystem goods and services, the following definitions are of relevance:

Natural capital is our ecosystems, biodiversity, and natural resources which underpins economies, societies and individual well-being (TEEB, 2008).

Ecosystem goods (such as food) and **services** (such as waste assimilation) represent the benefits human populations derive, directly or indirectly, from ecosystem functions (Costanza et al. 1997:253)

Ecological infrastructure is strategically planned and managed networks of natural lands, working landscapes and other open spaces that conserve ecosystem values and functions and provide associated benefits to society.

Figure 3: The spatial distribution of ecoservice score allocations for the uMgungundlovu District – see Map Book

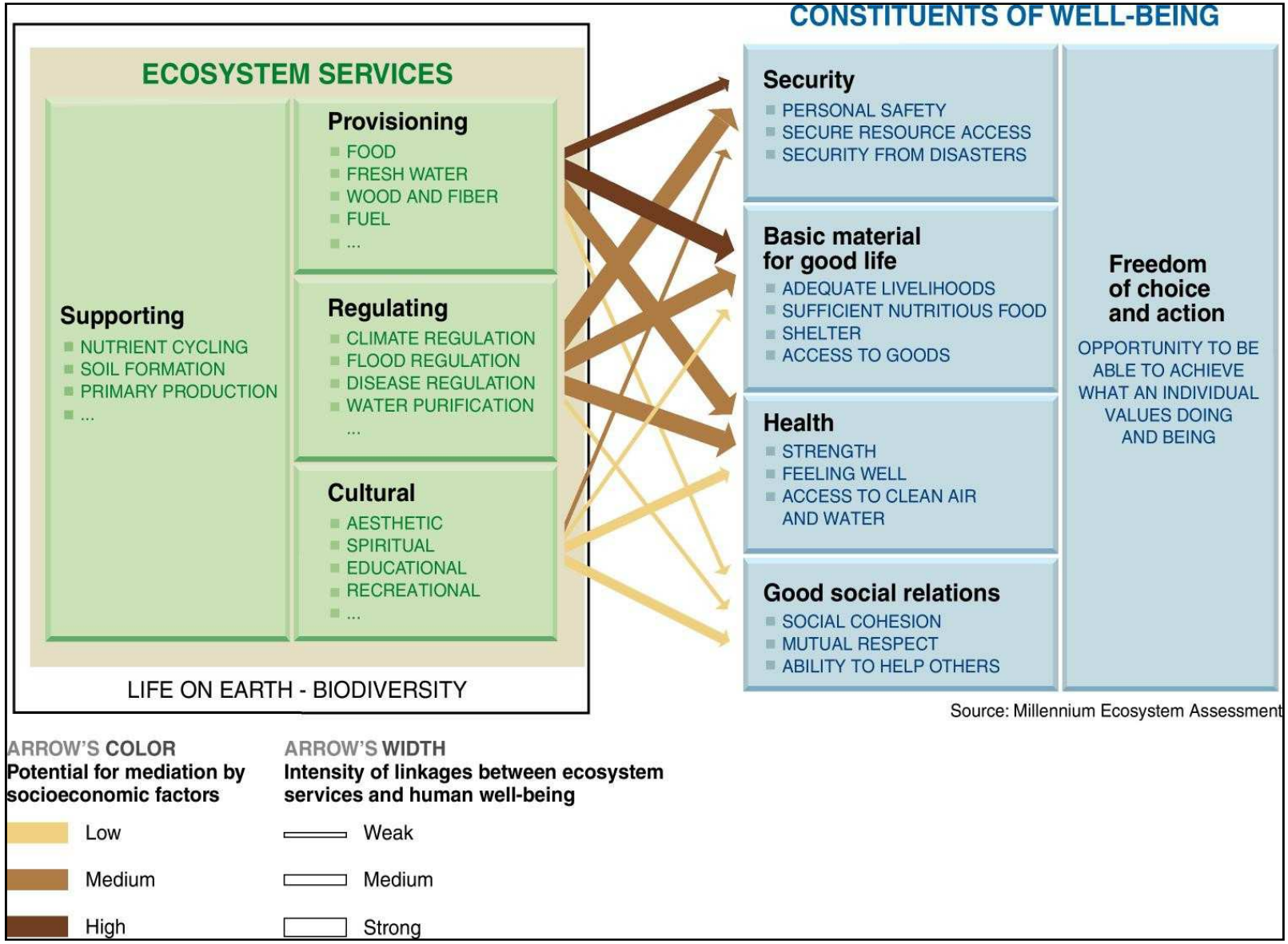

Figure 4: An illustration of the strategic linkages between ecosystem goods and services and the constituents of well-being (Source: Millennium Ecosystem Assessment)

1.3.3 The International, National and Provincial Context for the SEA

While the development of the SEA has to take cognisance of and respond to local sustainability considerations, it has to also reflect the visions, principles and targets set by relevant international, national and provincial policy (Figure 5). This section provides brief insight into these so that the reader is able to reflect back from the Sustainability Framework discussed in Section 3, and the SEA Report in general, to confirm relevance and appropriateness.

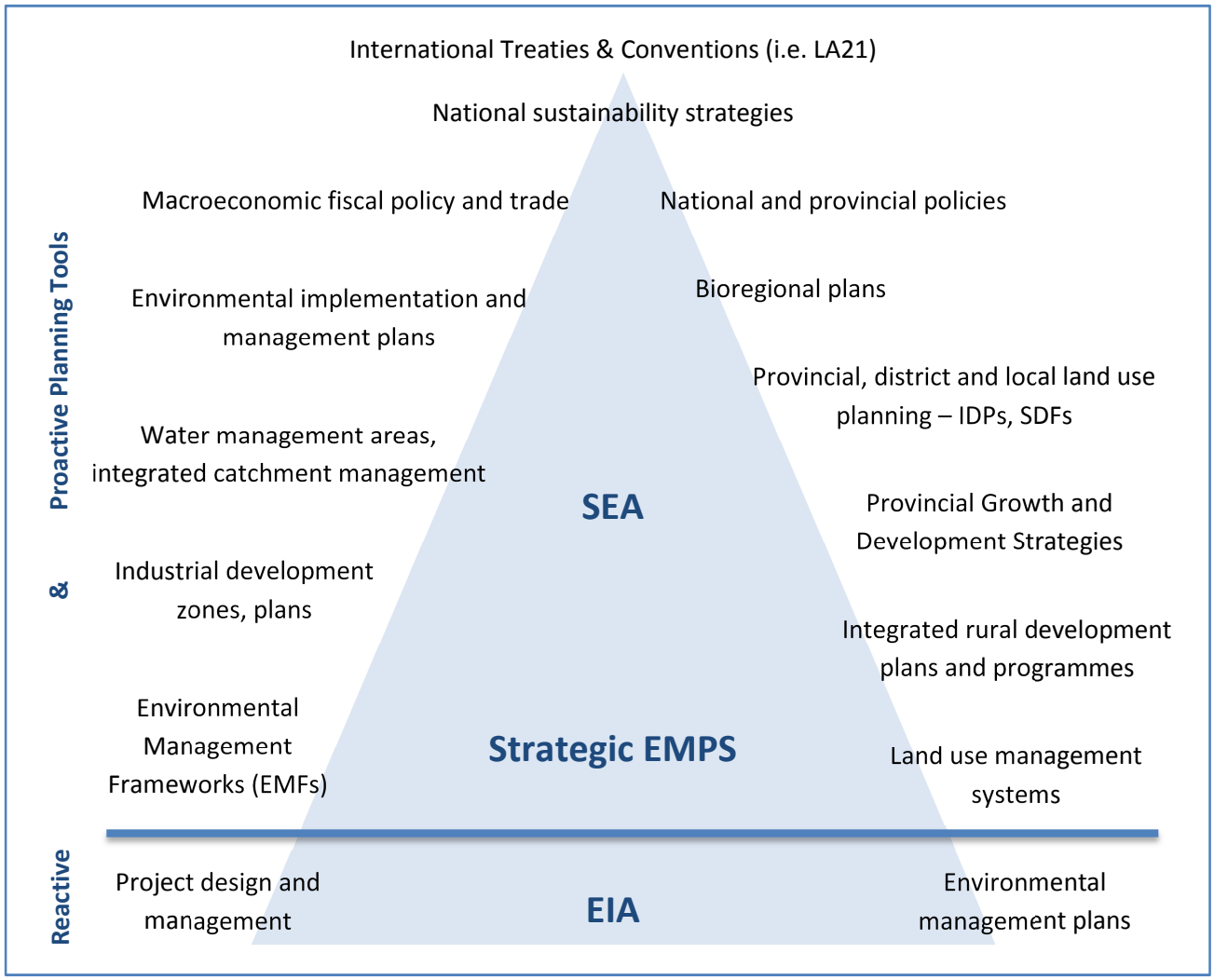

Figure 5: The SEA context relevant to international, national & local planning tools (adapted from DEAT, 2007)

1.3.3.1 Local Agenda 21

Local Agenda 21 is the result of various international policies and events that attempted to address the concern of sustainable development. The main event, however, was the United Nations Conference on Environment and Development in Rio de Janeiro in Brazil in 1992 – commonly known as the Earth Summit. At this summit, Agenda 21 was accepted as an action plan for sustainable development in the world. There was also a realisation that local action needs to be taken to ensure a larger degree of global sustainability. Therefore, Local Agenda 21 is the process used

internationally to translate Agenda 21 into action at the local level. In fact, the World Summit on Sustainable Development (WSSD) has rephrased the concept of Agenda 21 to Action 21.

Local Agenda 21 is thus a long-term, strategic process that will help local communities and local councils to deal with economic development and employment, environmental protection and with concerns of equity and justice. To a large extent, Local Agenda 21 seeks to reflect the needs, resources and hopes of local communities and places these in a global context.

The following are Local Agenda 21 principles which need to underlie local government planning:

- The integration of socio-economic and ecological issues;
- A multi-sectoral approach – involving all sectors of the community;
- Concern for the future – taking a long-term view;
- Recognising and working within ecological limits;
- Working in partnerships with civil society;
- Linking local issues to global impacts;
- Equity, justice and accountability.

1.3.3.2 National Strategy for Sustainable Development (NSSD)

In 2008, Cabinet approved the National Framework for Sustainable Development (NFSD) which signalled a new wave of thinking aimed at promoting effective stewardship of our natural, social, and economic resources. The NSSD builds on the NFSD and a number of existing initiatives by business, government, NGO's, academia and other key role players to address sustainability issues in South Africa. It is a forward-looking strategy that regards sustainable development as a long-term commitment that combines environmental protection, social equity and economic efficiency. The vision, goals, strategic priorities and objectives for South Africa's NSSD and action plan is given in Table 4 below.

Table 4: The vision, goals, strategic priorities and objectives for South Africa's NSSD and action plan (NSSD1) 2011–2014 (approved by Cabinet on 23 November 2011)

Vision	**"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"**				
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. • Monitor, evaluate and report performance and progress in respect of ecological sustainability in relation to socioeconomic goals.				
Strategic Priorities	Enhancing systems for integrated planning and implementation	Sustaining our ecosystems and using natural resources efficiently	Towards a green economy	Building sustainable communities	Responding effectively to climate change
Objectives	• Enhance effective **governance, and institutional structures** and mechanisms to achieve sustainable development and meeting the Millennium Development Goals (MDG) and Johannesburg Plan of Implementation (JPOI) goals and targets • Strengthen **monitoring and reporting** for improved environmental performance by government and the private sector	• Value, protect and continually enhance environmental assets and natural resources	• A just transition towards a resource-efficient, low-carbon and pro-employment growth path	• Create community awareness, participation and work together to protect their environment through changing the attitudes and behaviour in consuming resources sustainably and responsibly • Develop and support quality housing projects/programmes including building community self-sufficient farming strategies, indigenous knowledge, the sustainable production of herbs and traditional medicine, and businesses to secure societal equity and cohesion	• A fair contribution to the global effort to achieve the stabilisation of greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system • Effectively adapt to and manage unavoidable and potential damaging climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity
A list of interventions has been stipulated to assist in the achievement of each objective. This is further broken down into specific goals and headlines with indicators, which have been used as reference points in the development of the sustainability framework.					

1.3.3.3 KwaZulu-Natal Provincial Growth and Development Strategy and Plan (2030)

The PGDS provides a vision for 2030 as well as a strategic framework for the achievement of this vision which is captured below together with an illustration of the strategy in Figure 6.

Figure 6: PGDS Vision, Strategic Objectives and Goals (Brookes, 2012)

1.3.3.4 uMgungundlovu District Municipality

The vision and mission for the uMgungundlovu District Municipality are as follows:

VISION STATEMENT

uMgungundlovu District Municipality will evolve into a dynamic Metropolitan area, spreading its vibrant economic benefits to all its citizens and places and will, through concerted integrated development and service delivery, realise improvements in the overall quality of life.

MISSION STATEMENT

The uMgungundlovu District Municipality will through sound governance and community participation ensure the provision of equitable and sustainable services and economic growth.

While the above statements do not clearly reflect sustainability to the extent that this SEA does, there are aspects that do provide inference and potential purchase points for synergistic strategy formulation. The lack of reference to natural capital is however cause for concern and illustrates that the SEA is bringing new thinking to the District, and thinking that will have to be enthusiastically 'sold' to the relevant decision-makers. In order to assist with the selling process the following section provides insights into the opportunities that are rapidly emerging as the Green Economy.

1.3.4 Poverty Alleviation and the Green Economy

There are dynamics emerging that lend support to the need for sustainability to be playing a strategic role in the District's and the Province's growth and development, and poverty alleviation strategies. At a national level there is broad acceptance of the significant role that the Green Economy can play as illustrated by President Zuma who, in his State of the Nation Address on 9 February 2012, made mention of the New Growth Path Framework that was launched in 2010 and which recognises the green economy as one of six job drivers. He also mentioned the Green Economy Accord which was signed at South Africa's National Parliament on 17 November 2011 in Cape Town by Government representatives, business representatives, organised labour and the community constituents, which includes commitments towards a greener economy for South Africa.

More recently Water and Environmental Affairs Minister Edna Molewa, announced that R7.7-billion has been budgeted for environmental programmes between 2012/13 and 2014/15 and that this will provide 205 877 work opportunities and 102 603 full-time equivalent jobs (Creamer Media Reporter, 02/05/2012). Further to this she stated that the emergence of the green economy and the potential for job creation "made it incumbent upon us to debunk the myth that environment management hinders development". She added that "This green economy offers substantial opportunities for job creation and development in the environmental goods and services sector, particularly in biodiversity, waste and natural resource management services".

An illustration of the extent to which the Green Economy is predicted to provide opportunities for job creation is provided in Figure 7 which is a summary of the work carried out by the Independent Development Corporation, the Development Bank of Southern Africa, Trade and Industrial Policy Strategies in their efforts to show how greening the economy can provide job opportunities for South Africa (Maia et al, 2011).

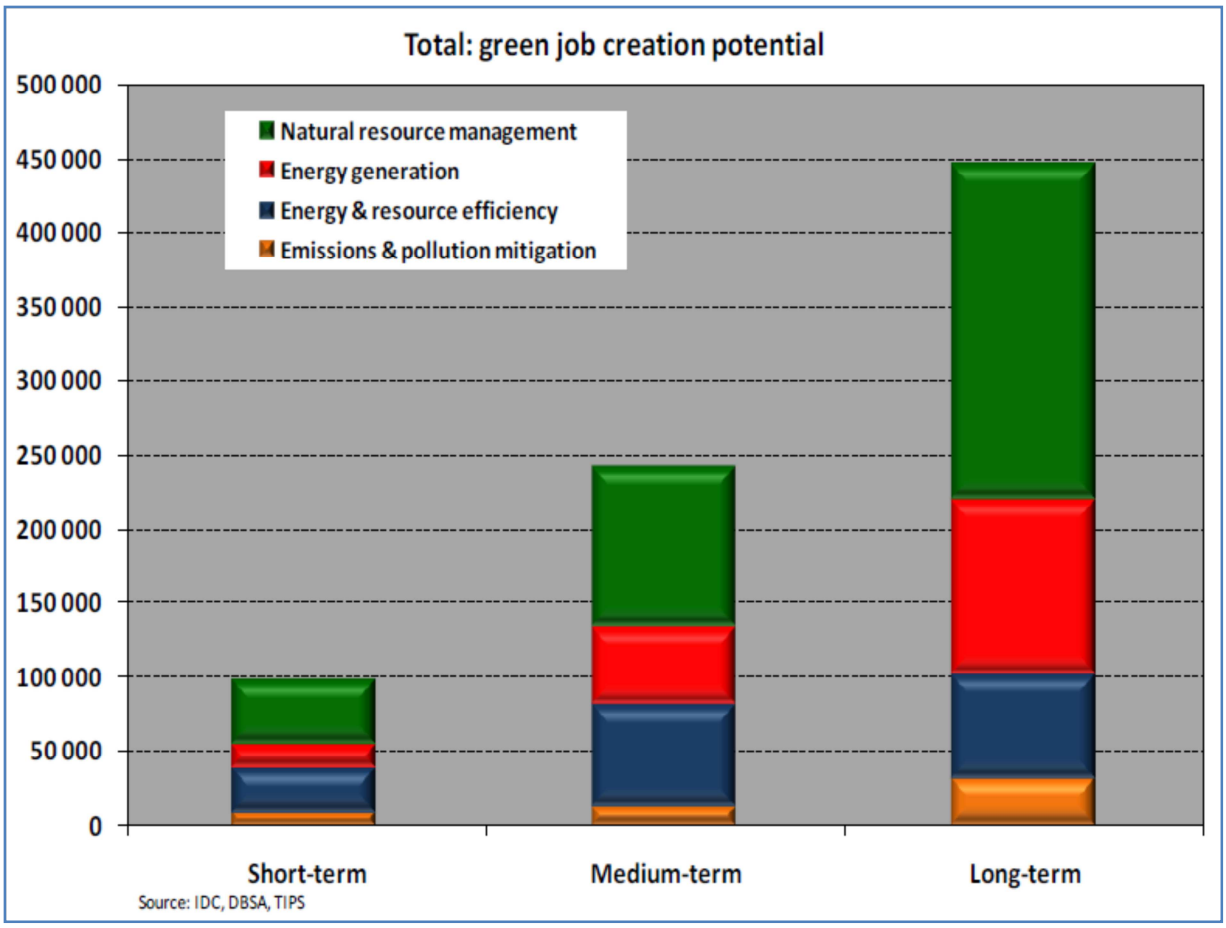

Figure 7: Projections of the job creation opportunities inherent in the Green Economy (Source: Miai et al, 2011)

At a Provincial level the KZN Department of Economic Development & Tourism (DEDT)undertook a study entitles *Unlocking the Green Economy in Kwazulu-Natal* (2011) which claims that in KZN, there is a growing demand for green goods and services. Durban generates a huge demand for basic inputs like energy, water, tourism services and food. The urban environment cannot generate these critical inputs, setting up a great demand for a more sustainable supply from the rural areas of the province. A key opportunity exists to use the economic engines in Durban, Richards Bay and other major urban centres in KZN to fuel rural economic growth. The study claims that rural KZN is well positioned to meet these demands, given its excellent endowment of areas reflecting high agricultural productivity, well watered, great wildlife and cultural assets, as well as ample labour.

The green growth opportunities in KZN, as identified in the above are numerous and include:

- Natural resource management
- Low carbon foods
- Green tourism accreditation
- Rural-based / niche tourism
- Renewable energy production - wind & biomass
- Green building design and construction
- Retrofitting existing buildings
- Efficient transport systems + increased public transport
- Efficient planning of towns and cities
- Developing niche markets in retail / manufacturing sector
- Support to informal traders and co-operatives

- Sustainable waste management i.e. reduce, reuse & recycle
- Expansion of environmental consulting, policy and research
- Green procurement
- Green social responsibility opportunities

DEDT is acting as the champion for shift in KZN to the green economy and are in the process of developing the KZN Green Economy Strategy. Particular emphasis will be given to supporting the development of new technologies, supply chains, and the capacity to unlock the green economy in both greening of existing businesses / industries as well as establishing new green products and services. They will also be promoting Green Economy development in other sectors through advocacy and support and continue to develop a "Community of Innovation" with Green Economy Working Groups, Green Economy Conferences, workshops, etc. Specific sectors that will receive focus in KZN are highlighted in Table 5 below.

Table 5: Specific focus sectors in KZN's Green Economy Strategy

Focus Sectors	Key Opportunities
Energy	1. Wind and biomass energy production 2. Green Buildings 3. Renewable energy technologies (R&D, manufacture, installation and maintenance)
Water	1. Optimising watershed services production (water supply, sediment reduction, water quality enhancement, flood reduction, waste dilution) through management of land use and associated development impacts
Food	1. Low-carbon crop production 2. Organic beef production
Tourism	1. Green rating / certification of tourism facilities 2. Marketing of the diverse high quality tourism assets of the province

From the above discussion it should be clear that this SEA is not a bio-centric attempt to push for the achievement of biodiversity conservation targets, but rather the development of a pragmatic policy document that will serve to re-instate the value and contribution of the District's natural capital to the Province and the country's growth and development as a whole. South Africa is currently ranked as 128th out of 132 countries in terms of its Environmental Performance Index according to the Yale Centre for Environmental Law and Policy (Emerson *et al*, 2012) and where a District such as the UMDM is so strategically placed, implementation of the recommendations that come out of this SEA process can conceivably make a significant contribution to improving this situation.

2 ANALYSIS OF PREVAILING ENVIRONMENTAL ISSUES

As already noted in this report, natural capital in the district is under stress with up to 50% transformed. Of this 50% a large proportion is under commercial and subsistence agriculture and the remainder under some form of settlement (formal and non-formal). Forty percent of the District has completely lost its ability to deliver ecosystem goods and services (EGS) and is delivering disservices with associated costs to society. Of the 60% of the District which still retains its ability to deliver EGS, only one third retains optimum capacity.

The stance taken by the National Strategy on Sustainable Development (NSSD) allied to the Green Economy Strategy being developed by DEDT and the Climate Change Response Strategy being developed by the District, points to a national drive towards sustainability. Experience from many countries, worldwide, indicates that achieving sustainability involves taking a fresh approach towards economic growth and development (not business as usual) and supporting the move towards adopting a 'green economy' approach to future development.

Running in parallel to the sustainability process is the drive towards economic growth and poverty alleviation. There is potential for these two processes to be in conflict with one another unless the alternative 'green economy' approach underpins the drive to economic growth and poverty alleviation. In addition to this it is also necessary for the traditional economic approach to acknowledge that the natural environment provides vital life support systems that deliver services that contribute to society's quality of life and underpin the economy.

This potential conflict is demonstrated by the findings of the Status Quo and analysis contained in the SEA where the indications are that there are insufficient natural resources left within the District to fuel this long-term economic growth strategy following the "business as usual" principle. The findings suggest that these limitations are already serving to constrain future development and will in time lead to rising costs and development seeking more cost effective locations outside the district (provincially, nationally and internationally).

In order for the proposed economic growth and development strategy to succeed, a balance needs to be sought between the three capitals of sustainability as indicated in this report. This SEA will achieve very little without the understanding and support of people, government and business (the three capitals). The findings of this study further suggest that understanding and support on their own are insufficient to sustain what is being proposed in the NSSD and national growth policies. What is required is a major paradigm shift in society, government and business away from unsustainable practises, towards green economy options being explored at all scales. This requires courage, commitment and leadership.

It against this background that the findings of the Status Quo assessment are analysed in this report, and used to identify a vision for a desired state of the environment and a sustainability framework. These in turn will then be used, together with the related spatial products and guidelines, to develop the SEMP.

The analysis of the status quo was carried out through the processing of all the aspects studied according to a framework based on the strategic priorities of the NSSD1 and is captured in the series of tables presented below. The issues that were identified were as follows:

- Governance and planning;
- Land degradation;
- Water demand and supply;
- Water quality;
- The green economy;
- Sustainable communities; and
- Climate change and air quality.

Each table provides a description of the issue and its relevance to the SEA and the District, together with a list of the drivers and pressures that are causing the issue to be prevalent, as well as the impacts that have manifested as a result. The aspects listed above must not be viewed as being in any order of priority but a comprehensive package that all require attention in order to see progress towards the desired state of the environment. The long-term vision of the SEA does not require these aspects to be prioritised, but the short to medium-term framework of the SEMP will see a degree of prioritisation emerge, but this may well reflect the capacity of the District and its strategic partners to select and action specific plans.

Governance & Planning

Key Environmental Issue (KEI)	Drivers & Pressures (Causes)	Impacts
Limited capacity and systems for integrated planning and implementation to achieve sustainable development – Inadequate intergovernmental co-operation and co-ordination for effective environmental governance; Poor monitoring and evaluation systems to assess progress towards sustainability; Insufficient resources and capacity made available for environmental management; Limited integration of sustainability into development planning.	• Inadequate capacity and financial resources within government structures • Lack of awareness of the importance of sustainability and environmental governance • Environmental issues are not considered a priority • Multiple authorities responsible for environmental management and implementation of complex legal frameworks • Lack of co-ordination and co-operation between different organs of state • Duplicated and inefficient use of state resources • Limited access to environmental information	• A lack of integrated planning is resulting in uninformed and poor decision making • Ineffective environmental compliance and enforcement undermines environmental governance • Inconsistency in governance promotes inequality and injustice • Inadequate capacity and financial resources is resulting in the deterioration of environmental resources and their quality • Inappropriate landuse and planning is leading to environmental degradation, unequal access to resources and the perpetuation of poverty • Poor understanding of the importance of ecosystem goods and services is leading to a decrease in sustainability and quality of life • Lack of transparent, clear and defensible decision making which undermines the right to a clean and healthy environment

Land Degradation

Key Environmental Issue (KEI)	Drivers & Pressures (Causes)	Impacts
The degradation of land and natural resources – Inappropriate land use and poor land management is resulting in land degradation, the loss of natural resources and reduced potential for the provision of ecosystem goods and life support services. This includes the loss of agriculturally productive land and a decline in biodiversity which has significant social and economic impact.	• A lack of awareness of the importance of natural land cover for the production of natural life support services and their role in sustaining human populations and the economy. • Poor land use planning and limited integration of natural resource protection into strategic and spatial planning • Historic land policies, inequitable land distribution, land tenure systems and population densities promote land degradation. • Limited capacity and financial resources to implement and manage land use. • Poor cooperative governance mechanisms and strategies. • Increased demand on natural resources for economic growth and development • Population growth places pressure on the natural systems to sustain livelihoods. • Poverty and unemployment results in the exploitation of resources as a livelihood strategy • Unsustainable agricultural practices by both commercial and subsistence farmers. • Unsustainable grazing management causing over grazing on communal lands • Invasive alien species diminish the productive use of land	• Urban expansion and poorly considered land use planning results in the permanent loss of high potential agricultural land. • Loss of agricultural production potential and increased risks for food security • Increased economic costs of development to engineer the ecosystem goods and life support services that have been lost through land degradation • Unsustainable land use practices increase invasive alien species which decreases land productivity and potential use • Increased run-off, erosion and sedimentation impacts on water quality and reduces the sustainable lifespan of water supply and irrigation dams. • Increased social and economic risks of disasters such as floods, landslides and fires. • A decrease in natural capital diminished the District's ability to sequestrate carbon and mitigate predicted climate change impacts. • Degraded land diminishes the aesthetic appeal of the landscape and potential for economic benefit from recreation and tourism • Loss of opportunities to enhance sustainable communal livelihood strategies for vulnerable communities that are reliant in natural resources for survival • A lack of natural resources to sustain livelihoods increases social dependency and poverty, and results in a decline in human health, well-being and quality of life

Water Demand & Supply

Key Environmental Issue (KEI)	Drivers & Pressures (Causes)	Impacts
Excessive water demand exceeds available supply - Current water demand from the uMngeni catchment area is exceeding sustainable levels and is stressing the aquatic ecosystems. Rapid urban & industrial expansion and population growth is increasing demands and this is compounded by inefficient water use and wastage. Degraded catchments and aquatic ecosystems diminish the ability of the natural systems to sustainably supply water. Dams and interbasin-transfer schemes increase costs of providing water to the consumers and negatively impact on overall river health and natural systems.	• The degradation of catchment due to poor land use management and the loss of wetland functionality and natural riparian vegetation. • Social and economic growth is exceeding the capacity of the natural systems to sustainably provide water. • Inefficient use of water and water wastage increases consumption and demand. • Land transformation and inappropriate land use planning diminishes water production potential • A lack of awareness and recognition of catchment management and water conservation	• The natural system has become significantly modified through land degradation, inter-basin transfers and the construction of dams which has diminished the natural systems ability to deliver sustained quantities of both surface and groundwater. • Water losses and inefficiencies increase the economic cost of the delivery of services • Reduced water available for ecosystem functioning and the ecological reserve degrades aquatic ecosystem health and the ability of the aquatic systems to provide water and other services • Degraded catchments and reduced sustainable water supply increases water costs for all users • Degraded aquatic systems increase the flood risk of vulnerable communities • There is conflict for a finite resource between alternative water users such as agriculture and urban uses • Alien invasive species and inappropriate land uses within the upper catchments significantly reduce water availability for down stream users and natural systems. • A decrease in the aesthetic appeal of catchments and aquatic ecosystems reduce their ability to accommodate recreational and tourism activities and sporting events

Water Quality

Key Environmental Issue (KEI)	Drivers & Pressures (Causes)	Impacts
Reduced water quality – Land degradation, Industrial effluent, and, poor sewerage, solid waste and storm-water management are impacting on water and aquatic ecosystem quality. This is resulting in declining social and economic conditions including increased health risks and costs; decreased river health; increased water treatment costs; increased risk of liability to the Municipality; increased water charges; and, decreased investor interest	• Industrial and economic activity concentrated in the Howick-Msunduzi-Camperdown corridor • Limited waste water treatment capacity • Insufficient maintenance and upgrading of sewerage, storm-water and solid waste infrastructure • Insufficient financial and human resources allocated to infrastructure maintenance and manage effluent discharges and solid waste • Limited capacity to monitor and enforce water pollution legislation • Often an un-coordinated approach to dealing with emergency water pollution issues due to a lack of clarity on roles and responsibilities • Service delivery backlogs in sanitation and adequate housing resulting in a high proportion of people living in un-serviced informal settlements • Population growth, high urbanisation and migration rates • Inefficient and inappropriate land use and management • The loss of catchment integrity, specifically wetlands and natural riparian vegetation • Limited awareness of the value of natural areas to deliver water shed services • Increased nutrient and bacterial loads in river systems from agricultural land uses, including both cultivation and intensive animal production	• The loss of catchment integrity and the loss of wetlands, riparian vegetation and floodplains decreases the ability of the natural environment to provide water purification services • Increased water treatment costs have direct economic impacts and act as a disincentive for economic investment • Poor water quality detracts from the aesthetic qualities necessary to attract tourism and major sporting events, i.e. Duzi Canoe Marathon and Midmar Mile • Increased eutrophication of water resources leading to a proliferation of aquatic alien invasive plants and increased water treatment costs, as well as damage to ecosystems through reduced sunlight and oxygen. • Increased healthcare costs through the increased risks of communicable water borne disease and a decline in human health and wellbeing • The high cultural and spiritual significance of fresh water systems to communities is compromised • Increased levels of water pollution, reduces the ability for the use the water for irrigation and food production.

Green Economy

Key Environmental Issue (KEI)	Drivers & Pressures (Causes)	Impacts
Economic growth that is not linked to sustainable resource use and environmental impact - Resource and ecosystem degradation due to over-exploitation of natural capital. Persistent poverty, unemployment, social dependency and inequality. An economy that is based on intensive resource consumption is depleting non-renewable and renewable resources beyond sustainable levels.	• High poverty and unemployment rates • Unequal distribution of wealth, land and resources • Unsustainable exploitation of natural resources to support economic growth • Depleted and stressed ecological systems • Consumption patterns exceeding supply • The economy is highly energy, carbon and resource intensive • Development pressure in the primary urban nodes and along the N3 corridor • Lack of integration of natural capital and ecosystem goods and services into economic and development decision making • Limited awareness of the importance of the natural environment in supporting socio-economic development	• Ecosystem failure will compromise the ability to address socio-economic priorities. • Resource and ecosystem degradation is resulting from the over-exploitation of natural capital • Poverty, unemployment and inequality remains persistent particularly in marginalised and vulnerable communities • There is an increase in social dependency due to the loss of natural resources that support sustainable livelihoods • Unequal distribution of wealth, land and resources promote environmentally harmful practices that increase environmental and resource degradation • Resource intensive consumption patterns are depleting non-renewable and renewable resources beyond sustainable levels

Sustainable Communities

Key Environmental Issue (KEI)	Drivers & Pressures (Causes)	Impacts
Inefficient spatial planning and urban design – Rapid population growth and urbanisation increases pressures on Municipalities to sustainably supply services. A large number of poverty stricken people live in informal settlements which are detrimental to their health and well-being. Safe, clean and pleasant environments are not being provided. Increased demand for development is placing pressure on the optimal use of land and the provision of sustainable services and infrastructure. Urban design does not optimise resources efficiency particularly in relation to electricity usage, water and sewer provision, waste management and accessibility of public transport. **Inadequate provision of basic services including water, sanitation and waste management** - The lack of equitable and universal access to basic services such as effective waste removal and the provision of appropriate sanitation and water services impact on human health and well-being and result in a deterioration of the quality of life. Waste recycling initiatives are not easily accessible to the majority of people in the District. **Inadequate recognition of Cultural Heritage –** Limited recognition of both natural and social heritage resources and of the spiritual, cultural and economic value of cultural heritage sites. Eurocentric biased knowledge of cultural heritage and insufficient data for all elements of cultural heritage undermines social cohesion and understanding.	• Rapid population growth and the migration of people into urban areas. • Historic land use planning and the legacy of inequitable and unsustainable allocation and use of land • Insufficient financial and human resource capacity allocated to the provision and maintenance of basic services and infrastructure • Limited awareness and knowledge of waste minimisation, recycling and alternative technologies. • Insufficient incentives for society to manage their environmental impacts and resource use more efficiently • Poverty, inequality and unemployment • Dependency on depleted natural resources for survival of marginalised communities	• Inadequate provision of basic services results in environments that are harmful to human health and well-being. • Limited access to acceptable waste collection services, inefficient waste disposal, limited recycling opportunities, and poorly managed landfill sites create significant water and air pollution impacts. • Littering and illegal dumping creates aesthetic and environmental impacts that detract from potential economic investments, while causing flood risks and infrastructure damage when washed into Stormwater drains. • The degradation of the natural environment is undermining food security and access to natural resources support livelihoods and self-sufficiency. • The limited recognition of the spiritual, cultural and economic value of cultural heritage sites results in these sites being lost. • The potential economic opportunities associated with natural and cultural heritage sites may be diminished in the sites are not recognised and protected.

Climate Change and Air Quality

Key Environmental Issue (KEI)	Drivers & Pressures (Causes)	Impacts
Localised poor air quality and greenhouse gas emissions contributing to Climate Change – Poor air quality issues localised within the Msunduzi and N3 corridor area is resulting in increased human health and well-being risks. Greenhouse gas emissions contribute to global climate change. A decrease in natural capital diminished the Districts ability to sequestrate carbon and mitigate predicted climate change impacts.	• Msunduzi and the N3 corridor are identified as areas of significant potential for economic growth. • Topography and temperature inversion acts as a trap for air pollution within the Msunduzi basin. • High traffic volumes in Msunduzi well as along the N3 corridor contribute to pollution levels • Limited availability of efficient and minimally polluting public transport systems • Current burning practices is adding to the amount of air pollutants • Reliance on wood and coal for cooking and heating in rural communities • Limited capacity, resources and cooperative governance mechanisms for air quality management and monitoring • External global atmospheric and climatic issues impact locally • High greenhouse gas emissions from within and adjacent to the district • Loss of carbon sequestration potential in the district as a result of land change and degradation • Reliance on fossil fuels for power production.	• Increasing risks to human health and decline in well-being due high levels of localised air pollution. • Increased unpleasant odours and nuisance due to concentrations of air pollutants within the Msunduzi basin. • Increased social and economic risk and vulnerability due to changes in climate • Increased variability and intensity in rainfall events can increase flooding and economic costs associated with infrastructure replacement and maintenance. • Variability of climate will influence the sustainability and economic viability of agriculture. • Temperature variability can increase potential for droughts and other natural disasters. • Climate uncertainty can influence the ability to ensure sustainable supplies of water. • Increased exposure to indoor air pollution through the reliance on wood and coal for cooking and heating within impoverished rural communities.

3 THE DESIRED STATE OF THE ENVIRONMENT

The Desired State of the Environment within the context of the SEA is that which is required to ensure that society and the economy within the District is positioned in a way that is within the thresholds of sustainability as determined by the capacity of the natural capital to deliver the crucial natural life support systems necessary to sustain both of these components. The discussion presented in Section 1.3.1 provides the rationale that supports this statement and this Section must be read within this context. The Sustainability Framework was the SEA model selected by the project team to depict the desired state of the environment and to be the point of departure from which to identify the route which the District would need to follow in order to get there. It is comprised of a Vision and a series of Sustainability Objectives which are further defined by Sustainability Criteria, Indicators and Targets. In addition to being a primary component of the SEA, the sustainability framework also serves as the basis from which the SEMP will be derived.

While this component has been compiled in direct response to the environmental management issues identified in the Status Quo Report, it has also drawn from a number of relevant strategies at the national, provincial and local level. Key examples of these strategies are as follows:

- The National Strategy for Sustainable Development and Action Plan 2011 to 2014;
- The National Waste Management Strategy 2011;
- The National Heritage and Cultural Tourism Strategy Version III 2011;
- The Water Reconciliation Strategy Study for the KwaZulu Natal Coastal Metropolitan Areas 2009;
- The National Ambient Air Quality Standards 2009;
- The KZN Provincial Growth and Development Strategy 2011;
- The KZN Provincial Growth and Development Plan 2012; and
- The Integrated Development Plan for uMgungundlovu District Municipality 2012.

The vision, sustainability objectives, indicators and targets that are captured in the sustainability framework either reflect those that are already in the above strategies, or set more relevant targets that are in excess of the reference documents. The sustainability framework is thus relevant within the context set by these strategies while still addressing local conditions and dynamics.

It is important to note that while the Sustainability Framework depicts best practice, it is recognised that capacity limitations are a reality that will need to be considered in the compilation of the SEMP. As such the SEMP process will ensure that realistic targets are set, but where these may fall short of achieving the objectives in the Sustainability Framework, there will be implications which will have to be noted and considered very carefully. It is recommended at this point in the process that these short falls should be used to identify the areas within which capacity needs to be developed in terms of achievement of the Desired State of the Environment.

It must be noted and reiterated here that the Sustainability Framework is relevant for the medium to long-term, i.e. the next 40 to 50 years, whereas the SEMP interprets actions that can be implemented over a short to medium-term time frame of approximately five years. Both the SEA and the SEMP are thus iterative processes that require revision and updating according to the time frames mentioned here and based on the extent to which the SEMP is able to move the District towards the Desired State of the Environment.

The Sustainability Framework has been compiled according to the Strategic Priorities of the NSSD1 in order to ensure that the national context is carried through to provide broad relevance, as well as to ensure that there is a logical flow of thought from the Issues Analysis as discussed in Section 2. In this regard the Sustainability Framework is presented in a series of tables under the same headings as the NSSD1 and the Issues Analysis. These tables appear after the discussion on their constituent parts that is presented below.

3.1 The Vision

The vision that is captured here is a result of a number of iterations that were reviewed and contributed to by the project team, the project steering committee and stakeholders. In this process existing visions that have been formulated by the District and Local Municipalities have been reviewed and it was deemed necessary to formulate a specific vision for the SEA as it introduces the concept of sustainability in a much stronger way, as well as the role of natural capital in social wellbeing and economic resilience. It has also been articulated within the context of relevant national and provincial strategies as discussed in Section 1.3.3. The vision for the SEA reads 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.

In order to ensure that this vision is understood it is explained in more detail below according to its various components:

"…the UMDM and its Strategic Partners…":

Implementation of the SEA and SEMP will need to be done according to the principles of co-operative governance in recognition of the fact that the UMDM does not have the full legal mandate, relevant competencies and/or capacity for implementation. While it is necessary that the UMDM enhance its environmental management capacity, the legal mandates of relevant government agencies at the local, provincial and national levels all need to be harnessed through a formal Implementation Protocol.

"… that by 2040 the District will be recognised …":

The SEA, its vision and the sustainability framework are formulated with a time frame of 30 to 40 years as it is recognised that it will take a time frame such as this to achieve these broad statements of intent. The SEMP however, must be seen as a short-term extract of the SEA with a three to five year time frame, and which is subjected to critical review at this frequency.

"… within which sustainability is at the core of all planning and decision-making …":

The process to derive the SEA and SEMP and these products themselves are seen as platforms from which to introduce sustainability into every facet of the way the District functions. Currently it is

evident that economic growth in the traditional sense is seen as the only means to ensure that the District thrives and that challenges such as unemployment and poverty are addressed. As discussed in the introduction to this report, this one dimensional approach of "business as usual" will have dire consequences to all the capital components, i.e. further depleting natural capital, reducing societal wellbeing and increasing economic vulnerability.

"…thus ensuring that its natural capital is restored and managed …":

The role of natural capital in under-pinning the wellbeing of society and the resilience of the economy has been discussed in the introduction to this report together with the fact that the current condition of this component of sustainability is that it is over-drawn and degraded. It is essential that the District's natural capital needs to be recognised as an asset which must be restored where it has become degraded, and well managed to ensure that it retains its full potential to deliver the vital ecosystem goods and services essential to societal wellbeing and economic resilience.

"… so as to optimally contribute to the wellbeing of its people and the resilience of the economy."

The converse of this portion of the vision relates to the current status quo in the District and beyond in terms of the fact that there is evidence of market failure where the ability of the District's natural capital to contribute to social wellbeing and economic resilience is being undermined. There is already evidence of high societal costs associated with issues such as water and air pollution, as well as access to water. If this situation is turned around and investments are made to secure the integrity of the natural capital, these societal costs will be significantly reduced while additional opportunities will be opened up. The cost of business in the District will also be reduced and it will become an attractive place to live and work.

3.2 Sustainability objectives

According to DEAT (2007) sustainability objectives provide clear statements of intent and indicate the desired direction to achieve the vision. They also provide a methodological 'yardstick' against which the environmental effects of the SEA can be tested while also guiding the SEA process in terms of the level of detail and type of information or data that is required. More specifically sustainability objectives should:

- focus on the desired outcome;
- be clear and concise;
- be of the appropriate scale; and
- be compatible with each other.

In order to identify the sustainability objectives relevant to the UMDM, cognisance was taken of the prevailing dynamics impacting on the integrity of the natural capital and the current sustainability performance of the District. While there is no objective measure of the latter, the Status Quo Report does provide a clear indication that both of these considerations are dire and much effort is required to re-instate natural capital to a condition whereby it can contribute to the wellbeing of people in the District and to the resilience of the economy, as stated in the vision. The Status Quo

Report also indicates that the trend of natural capital loss and degradation is increasing which places added emphasis on the need for the SEA and implementation of the SEMP.

3.2.1 Alignment with the National Strategy for Sustainable Development's Strategic Priorities

Much has already been written in this report in regard to its alignment to national and provincial strategies (see Section 1.3.3). Of greatest relevance is the National Strategy on Sustainable Development and Action Plan 2011 – 2014 (NSSD1). In order to demonstrate the extent to which the sustainability objectives set for the UMDM relate to the NSSD, a numbering system has been introduced which reflects the NSSD Strategic Priorities that are relevant within each sustainability objective. The five Strategic Priorities are listed below:

1. Enhancing systems for integrated planning and implementation;
2. Sustaining our ecosystems and using natural resources efficiently;
3. Towards a green economy;
4. Building sustainable communities;
5. Responding effectively to climate change.

Each sustainability objective is followed by a series of numbers from 1 to 5 which reflects the above and their relevance to the objective and vice versa. The purpose of this exercise is to demonstrate to the reader the extent to which each sustainability objective bears relevance to the national perspective as reflected in the NSSD.

3.3 Sustainability Criteria

Sustainability Criteria and indicators are tools which can be used in the conceptualisation of environmentally sustainable development and the monitoring of progress towards achieving sustainability in its broadest sense. Sustainability Criteria define the essential components of the social, economic, natural and governance environments. Collectively, Sustainability Criteria provide an implicit, generally agreed-upon definition for the desired state of the environment.

Each criterion relates to a key element of sustainability, and may be characterised by one or more quantitative, qualitative, or descriptive indicators. Through the measurement and monitoring of these indicators, the overall effects of environmental management interventions, or non-intervention, can be assessed and evaluated, and action can be adjusted to meet stated aims and objectives more effectively.

3.4 Selection of indicators to be used in Monitoring and Evaluation

Indicators are components of a larger system which can be measured or evaluated to provide a reliable indication of the status of that larger system. Indicators are a means of evaluating the "big picture" by looking at a small piece of it through determining trends that reflect key dynamics. An

indicator can be a particular species that is sensitive to change in the integrity of its host habitat. An example of this is amphibians that require good water quality.

Indicators need to:

- be easily measurable;
- be sensitive to anticipated changes;
- be based on good quality and affordable data;
- should result in collection of data that are spatially and temporally appropriate;
- Be specific to the environmental issues that are important for decision-making; and
- Should help to measure progress towards achieving sustainability objectives

In terms of biodiversity indicators, there are three categories[1]:

- **State indicators** which measure the state of biodiversity, such as how species abundance changes through time or the condition of important habitats;
- **Pressure indicators** which measure some of the factors causing biodiversity loss such as pollution or habitat fragmentation; and
- **Response indicators** which track the efforts to conserve biodiversity though do not describe its state.

In selecting indicators for the terrestrial and fresh water components of the UMDM it is important to acknowledge the direct linkage between these, i.e. the integrity of fresh water habitats are directly impacted by the integrity of the terrestrial environment. When the latter is in good condition, it has the capacity to deliver ecosystem services to the fresh water environment that are beneficial. However, the fresh water environment can also be negatively impacted on despite the condition of the terrestrial environment through direct inputs such as mismanagement of waste water treatment plants, and therefore it is still important to monitor both components.

Finally it is reiterated that the sustainability framework serves as a basis for providing detail on the desired state of the environment, while also as a point of departure for the development of the SEMP. It must also be seen as being complimentary to the spatial component of the SEA, i.e. the environmental control zones and guidelines.

[1] UK Parliamentary Office of Science and Technology, 2008, Biodiversity Indicators, Postnote, July 2008, Number 312

3.5 The Sustainability Framework for the uMgungundlovu District Municipality SEA and SEMP

NSSD 1 Strategic Priority 1: Enhancing systems for integrated planning and implementation

Key Environmental Issue:	Limited capacity and systems for integrated planning and implementation to achieve sustainable development
Insufficient intergovernmental co-operation and co-ordination for effective environmental governance; Poor monitoring and evaluation systems to assess progress towards sustainability; Insufficient resources and capacity made available for environmental management; Limited integration of sustainability into development planning.	
Sustainability Objective	
Enhanced and effective environmental governance, institutional structures and systems to achieve integrated planning and implementation.	
Sustainability Criteria	
Environmental sustainability criteria are integrated into Policies, Plans, Projects and decision making.	
Co-operative environmental governance structures and mechanisms promote integrated planning and ensure efficient and effective implementation of environmental functions and responsibilities.	
Financial resources and capacity enable the implementation and management of environmental functions and responsibilities.	
Municipal Capital investment projects comply with relevant environmental legislative requirements.	
Communities are informed, empowered and involved in the process of democratic environmental governance.	
Access to environmental information is facilitated and encouraged.	
Monitoring and evaluation systems assess and report on the progress towards sustainability.	
Indicators	**Targets**
% of Policies, Plans and Projects assessed using sustainability appraisal	100% of all Policies, Plans and Projects approved by council
% of Municipal Budget allocated to environmental mandates	Baseline and target to be determined
Number of environmental non-compliance issues identified for capital investment projects	Nil
Environmental awareness index	Baseline and target to be determined (Environmental awareness survey to be undertaken as part of SoER process?)
District Municipality State of Environment Report (SoER)	SoER complied every 5 years
Sustainability Strategies	
Establish effective co-operative environmental governance structures and institutional mechanisms between key environmental authorities.	
Integrate the sustainability criteria and environmental sensitivity information of the SEA into all municipal planning.	
Ensure all UMDM projects comply with all relevant environmental legislation, regulations, policies and guidelines.	
Environmental issues and priorities must be embedded into the Performance Management System and Key Performance Areas of all components of the Municipality.	
Build capacity in environmental compliance monitoring and enforcement through increasing the numbers of Environmental Management Inspectors.	
Develop a sustainability appraisal tool to be used for the evaluation of Policies, Plans and Projects.	
Develop a monitoring, evaluation and reporting mechanism to facilitate continual assessment towards achieving sustainability.	

Undertake a District SoER every five years and use the outcomes to revise and update the SEA and SEMP.
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.
Develop and implement skills development strategies to promote integrated planning and enhance environmental management.
Promote access to environmental information that is easily available to all sectors of society through various information media.

NSSD 1 Strategic Priority 2: Sustaining our ecosystems and using natural resources efficiently

Key Environmental Issue: **The degradation of land and natural resources**	
Inappropriate land use and poor land management is resulting in land degradation, the loss of natural resources and reduced potential for the provision of ecosystem goods and life support services. This includes the loss of agriculturally productive land and a decline in biodiversity which has significant social and economic impact.	
Sustainability Objective	
The use of natural capital is compatible with the maintenance of ecosystem functionality and natural resources are protected and restored.	
Sustainability Criteria	
Areas identified as being essential for the persistence of biodiversity and for the provision of ecosystem goods and services are valued, protected and continually enhanced.	
Degraded areas are identified, rehabilitated and managed to promote land productivity.	
High potential agricultural land is protected and rehabilitated for sustainable agricultural production.	
Agricultural production is enhanced and increased through environmentally sustainable agricultural practices.	
Areas of geotechnical, geological or instability risks are identified and avoided in land development.	
Compact land development patterns use land efficiently.	
Indicators	**Targets**
% decrease in the Provincial Land Degradation index for the District	2015 0% No nett increase/ 2020 15% decrease/ 2025 30% decrease/ 2030 50% decrease
% land transformation of areas identified as being essential for the persistence of biodiversity and for the provision of ecosystem goods and services	Not exceeding connectivity thresholds (i.e. 75% of land in identified planning units remains untransformed)
% land transformation of high potential agricultural land to non-agricultural uses	No nett loss
Sustainability Strategies	
Sustainability objectives and criteria must be integrated into all relevant policies, programmes and plans.	
Integrate the uMgungundlovu biodiversity sector plan into all municipal spatial and land-use plans.	
Integrated and coordinated land use management through cooperative structures and strategies.	
Incentives for sustainable agriculture land management practices that are within acceptable norms and standards.	
Implement landcare and rehabilitation (including wetlands, alien species and erosion) projects aimed at green job creation and restoring land and natural resources.	
Develop and implement a community based natural resource management strategy.	
Implement a protected area expansion strategy to create a network of protected areas representative of the District's biodiversity.	
Strengthening Biodiversity Stewardship programmes.	
Establish urban open space and conservation plans.	

Communicate all spatial products to relevant stakeholders such as Estate Agents and ensure that same is freely available in easy access formats.

Key Environmental Issue:	Excessive water demand exceeds available supply
Current water demand from the uMngeni catchment area is exceeding sustainable levels and is stressing the aquatic ecosystems. Rapid urban & industrial expansion and population growth is increasing demands and this is compounded by inefficient water use and wastage. Degraded catchments and aquatic ecosystems diminish the ability of the natural systems to sustainably supply water. Dams and interbasin-transfer schemes increase costs of providing water to the consumers and negatively impact on overall river health and natural systems	
Sustainability Objective	
The ability of aquatic resources to provide water is maintained within the limits of sustainability.	
Sustainability Criteria	
Wetland areas, streams and rivers are protected, rehabilitated and managed to maintain ecological functioning.	
Flood prone areas are managed to promote ecosystem goods and services, to minimise flood risks and impacts.	
Water demand management results in minimised water loss and optimised water conservation.	
Everyone has access to the minimum supplies of potable water needed to maintain their health and well-being.	
Catchment and river management policies and guidelines integrated into land use and development planning.	
Equitable and fair access to water supplies is provided for all water users.	
Indicators	**Targets**
Municipal water loss %	Less than 15%
Per capita consumption	Consumption ≤ 200 l/capita/day
% households with access to a minimum of 75 litres of water per person per day	100%
Wetland and riparian area functional loss	No net loss of wetland and riparian functionality
Reduction of water demand	15% reduction as determined in the water reconciliation strategy
Sustainability Strategies	
The restoration and sustainable management of water catchments.	
Policies and measures implemented to significantly reduce levels of water consumption and demand through water use efficiencies.	
Determination and maintenance of the ecological reserve for key rivers.	
Coordinate and integrate strategies and programmes to ensure sustained implementation of alien plant control and rehabilitation.	
Coordinate and integrate strategies and programmes for wetland and riparian area rehabilitation.	
Implement a water loss and wastage management plan.	
Develop policies and strategies for the more efficient and effective management of farm dams and irrigation systems.	

Key Environmental Issue: **Reduced Water Quality**	
Land degradation, Industrial effluent, and, poor sewerage, solid waste and storm-water management are impacting on water and aquatic ecosystem quality. This is resulting in declining social and economic conditions including increased health risks and costs; decreased river health; increased water treatment costs; increased risk of liability to the Municipality; increased water charges; and, decreased investor interest.	
Sustainability Objective	
Water quality in all aquatic ecosystems in the District is significantly improved and maintained.	
Sustainability Criteria	
Bacteria and pathogens in all aquatic systems do not pose a significant risk to health and wellbeing.	
Nutrient concentrations and loads in all aquatic systems reverse current unacceptable trends of eutrophication.	
Aquatic ecosystems are in a functional and healthy state.	
Indicators	**Targets**
Faecal coliform / *E. coli* concentrations	Not to exceed the limits determined in Integrated Catchment Management Plans (or relevant DWA Water Quality Standards)
Nitrate and Phosphate ratio Nitrate and Phosphate concentrations / load Electrical conductivity Turbidity pH (NH3, Total Organic Carbon /other additional indicators as may be needed for monitoring specific pollution types in relevant areas)	Not to exceed the limits determined in Integrated Catchment Management Plans (or relevant DWA Water Quality Standards)
SASS5, Mini-SASS and Benthic Diatom scores	SASS5, Mini-SASS and Diatom scores meet and exceed river health classes determined in Integrated Catchment Management Plans
Sustainability Strategies	
Development of Integrated Catchment Management Plans.	
Develop and implement a scheduled maintenance and upgrade programme of all sewerage infrastructure and wastewater treatment works.	
Develop a water pollution emergency response protocol.	
Develop an integrated water quality and river health monitoring system.	
Develop an incentive scheme designed to improve water quality.	
Integrate the costs of restoration and sustainable management of catchments into the water reconciliation and pricing strategy.	
Ensure adequate resources and capacity for the compliance monitoring and enforcement of relevant water legislation.	
Develop policies for improved /efficient technologies at the points of waste generation and effluent treatment in order to reduce impacts.	
Implement and ensure compliance with an integrated waste discharge-charge system.	

NSSD 1 Strategic Priority 3: Towards a Green Economy

Key Environmental Issue:	Economic growth that is not linked to sustainable resource use and environmental impact
Resource and ecosystem degradation due to over-exploitation of natural capital. Persistent poverty, unemployment, social dependency and inequality. An economy that is based on intensive resource consumption is depleting non-renewable and renewable resources beyond sustainable levels.	
Sustainability Objective	
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 Criteria	
An environmentally sustainable economy promotes distributional equity, is resource efficient and provides for the rehabilitation and sustainable management of natural capital.	
Absolute poverty is eradicated and the wealth gap is reduced.	
A low-carbon economy that relies on clean, renewable and efficient energy sources and transport options.	
A resource efficient economy that optimises its use of water while significantly reducing waste generation.	
An equitable and broad range of employment opportunities exist that provide people with an income to support themselves and their families.	
Indicators	**Targets**
Unemployment rates	<5% of economically active people
Share of income earned by poorest 60%	>20%
% of households in absolute poverty (No. of households whose per capita expenditure is below the national Food Poverty Line)	0%
Number of green jobs created within the District	15000
Number of green technology businesses established within the District	50
Sustainability Strategies	
Develop and implement a green economy strategy and programmes for the District.	
Implement skills development in the green economy sector.	
Develop incentives for the production of environmentally friendly products.	
Establish investment incentives to support and promote green industries and developments in the District.	
Implement programmes to ensure the rehabilitation and sustainable management of natural assets and ecosystem services.	
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).	
Promote self-sufficiency, food security and sustainable livelihoods.	

NSSD 1 Strategic Priority 4: Building Sustainable Communities

Key Environmental Issue: **Inefficient spatial planning and urban design; inadequate provision of basic services including water, sanitation and waste management; and, insufficient recognition of Cultural Heritage**	
Rapid population growth and urbanisation increases pressures on Municipalities to sustainably supply services. A large number of poverty stricken people live in informal settlements which are detrimental to their health and well-being. Safe, clean and pleasant environments are not being provided. Increased demand for development is placing pressure on the optimal use of land and the provision of sustainable services and infrastructure. Urban design does not optimise resources efficiency particularly in relation to electricity usage, water and sewer provision, waste management and accessibility of public transport. The lack of equitable and universal access to basic services such as effective waste removal and the provision of appropriate sanitation and water services impact on human health and well-being and result in a deterioration of the quality of life. Waste recycling initiatives are not easily accessible to the majority of people in the District. Limited recognition of both natural and social heritage resources and of the spiritual, cultural and economic value of cultural heritage sites. Eurocentric biased knowledge of cultural heritage and insufficient data for all elements of cultural heritage undermines social cohesion and understanding.	
Sustainability Objective	
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 Criteria	
Environmental sustainability and ecosystem goods and services are integrated into development planning.	
Sustainable municipal bulk service infrastructure and facilities are available, maintained and managed, to sustainably meet the needs of residents and business.	
All residents have appropriate, secure and affordable housing and access to basic services in order to meet their basic needs and to live with dignity.	
Communities vulnerable to environmental risk are identified and strategies are in place to minimise these risks.	
Environmental justice and equity must be pursued so as to ensure that environmental impacts do not unfairly discriminate against any person or community.	
Community services, facilities, community parks and open spaces are accessible to all people.	
An efficient, safe, integrated and convenient network of public transport, bicycle routes and pedestrian access is provided.	
Safe, clean and pleasant environments are provided to protect and enhance human health and well-being and improve overall quality of life.	
Resources use is minimised through energy efficiency, reduced water demand, efficient waste management and the provision of accessible public transport.	
Cultural and natural resources and sense of place are protected and maintained.	
Indigenous ecological and cultural knowledge is developed and integrated into planning and management processes.	
Indicators	**Targets**
Domestic Waste collection standards (GN R21 of 21 January 2011)	100% adherence to standards for levels of service, waste collection and recycling centres
% of households with access to sufficient, clean potable water (Min 75L/person/day)	100%
% of households with sanitation to MIG standards	100%
% of households with a source of electrical supply	100%
Blue drop score	Greater than 80% compliance

Green drop score	Greater than 80% compliance
Sustainability Strategies	
Sustainability objectives and criteria must be integrated into all relevant policies, programmes and plans, particularly municipal spatial and land-use plans.	
Fast-track the equitable and universal access to acceptable standards of basic services.	
Undertake municipal infrastructure capacity and status assessments and implement upgrade and maintenance interventions to ensure the provision of sustainable services.	
Undertake environmental vulnerability assessment to identify communities at risk and develop appropriate strategies to minimise risks and promote human well-being.	
Green design policies and standards are developed for spatial planning and developments in order to promote environmental efficiency and minimise use of resources.	
Develop and implement IWMPs that meet and exceed the standards set by the National Waste Management Strategy and waste collection standards.	
Undertake an extensive cultural heritage resource identification and classification programme.	
Establish community based tourism opportunities linked to cultural heritage sites to support their protection and management.	

NSSD 1 Strategic Priority 5: Responding effectively to climate change

Key Environmental Issue:	**Localised poor air quality and greenhouse gas emissions contributing to Climate Change**
Poor air quality issues localised within the Msunduzi and N3 corridor area is resulting in increased human health and well-being risks. Greenhouse gas emissions contribute to global climate change. A decrease in natural capital diminishes the District's ability to sequestrate carbon and mitigate predicted climate change impacts.	
Sustainability Objective	
Air quality is significantly improved, Greenhouse gas concentrations are reduced and there is resilience to climate change within communities and ecosystems.	
Sustainability Criteria	
Ambient air quality standards for the protection of human health and well-being and natural systems are maintained.	
A low-carbon economy is achieved through energy efficiency, the use of alternative technology and reducing the dependence on fossil fuels.	
Greenhouse Gas emissions are reduced to levels in line with Cabinet approved targets.	
Natural systems are restored and maintained to be suitable for the sequestration of carbon and mitigate for climate change.	
Climate change adaptation strategies effectively build and sustain social, economic and environmental resilience to climate change.	
Indicators	**Targets**
Ambient air quality monitoring of SO_2 and PM10	No exceedance of ambient air quality standards
% reduction in Greenhouse gas emissions (metric tons CO_2 equivalent)	2020 34% below business-as-usual baseline / 2025 42% below business-as-usual baseline
% of households with access to electricity	100%
Units of energy saved through energy efficient interventions	Target to be established
Sustainability Strategies	
Develop a District Air Quality Management Plan, including comprehensive ambient air quality standards, and air quality monitoring, evaluation and reporting protocols.	
Establish the financial and human resources to manage and monitor air quality in the District.	
Decrease greenhouse gas emissions to levels in line with Cabinet approved targets.	

Promote efficient and clean public transport systems.
Develop and implement a climate change response and adaptation strategy.
Update disaster management plans to include pro-active response to climate change.
Restore and maintain indigenous woodlands, forests and other areas suitable for the sequestration of carbon.
Promote urban greening initiatives for the role it plays in mitigating air pollution and in carbon sequestration.
Reducing household indoor combustion of wood and coal by increasing access to electricity.
Develop and implement increased standard design specifications for key infrastructure to cater for extreme climatic events.
Develop incentives for energy efficiency and air pollution reduction and abatement.

4 ENVIRONMENTAL CONTROL ZONES AND GUIDELINES

The purpose of the Environmental Control Zones (ECZ) and associated Guidelines is to provide the UMDM with a spatial and qualified indication of areas within which development options are recommended, restricted or undesirable based on the consideration of the conservation and land use categories. Working in conjunction with the Sustainability Framework, these provide an added dimension to the SEA that will help the District move towards achieving the sustainability vision. The primary use of this product should be to realign existing planning instruments, i.e. IDPs and SDFs, both to the SEA as well as to each other; as well as to rapidly assess development applications in terms of their compatibility or conflict with the SEA.

The ECZs and Guidelines have been addressed on the basis of the following relevant features in the District: natural resources, including terrestrial (land based) and aquatic (fresh water); agricultural potential; and other including air quality, slope and cultural heritage. Each feature is introduced in terms of the data upon which it is based and a discussion is provided to explain the details within. In order to minimise the digital size of this report and to facilitate distribution, the relevant maps are provided in a separate map book and the captions in this text point to these. Thereafter the guidelines associated with the ECZs are provided so as to facilitate continuity for the reader.

4.1 Definition of Land Use Categories

Although a dedicated section has already been provided on the definition of technical terms used in this report, a specific Sub-section has been provided here to ensure that the land use categories included in the Guideline tables of this Section are understood. Where they are included as footnotes these have been retained for ease of use and reference. Each of the land use categories are listed below with their definition.

IRRIGATED CROP PRODUCTION	Category includes irrigation of commercial production of crops for both extensive and intensive crop production.
EXTENSIVE CROP PRODUCTION	Dry land commercial production of crops over large areas. Excludes irrigated crop production.
INTENSIVE CROP PRODUCTION	Intensive commercial production on small areas general 10ha or less which may require infrastructure such as tunnels.
AGRI-INDUSTRY	This category accounts for the beneficiation or secondary processing of raw agricultural products.
INTENSIVE PRODUCTION OF ANIMALS AND/OR ANIMAL PRODUCTS	These activities involve the concentration of animals for the production of animal products (eggs, milk, meat). These activities also involve associated infrastructure.
EXTENSIVE ANIMAL PRODUCTION	Livestock and game production on natural unimproved veld at appropriate carrying capacity.
FORESTRY	Commercial timber production.
ECOLOGICAL INFRASTRUCTURE	This category includes independent or linked open space areas that are in their natural state and which are providing important ecosystem services within a transformed landscape (rural or urban).
TRANSFORMED OPEN SPACE	Transformed passive and active open space which is managed as a public amenity. e.g. parks, sports fields and golf courses, country clubs, equestrian centres/race courses, polo fields.
LOW IMPACT/ ECO-TOURISM	Tourism developments located in or linked to sensitive or unique rural environments. Tourism developments in this category have a focus on the natural, cultural and agricultural resources and are in support of or

	keeping with existing land-use.
MEDIUM IMPACT TOURISM	Rural-based tourism land, where activity is in keeping with rural and natural landscape, examples include campsites, B&Bs, small hotels and lodges which are utilised on a temporary basis.
HIGH IMPACT TOURISM	This category includes large tourism developments with extensive infrastructure and associated activities. Examples include large hotel and conference centres with various sporting and recreational facilities such as golf courses, arenas, and where tourism becomes the primary economic activity.
AIRSTRIP	This category makes provision for aircraft landing and take-off, usually equipped with hangars, facilities for refuelling and repair, and often for small tourism or agricultural related (crop sprayers) use.
ROADS AND RAILWAYS	This category covers all major arterial roads including district, provincial and national and railway routes, open areas for the storage and repairs of trains, stations and passenger facilities and warehouses for freight operations.
UTILITIES AND SERVICES	Category includes cell phone masts, all types of bulk linear infrastructure, such as power lines and pipelines, and associated infrastructure, such as pump stations and substations.
SEWERAGE WORKS	This category includes waste water treatment works and associated infrastructure necessary for the Municipality to treat waste water, and includes package plants.
WATER WORKS PROJECTS AND CATCHMENT TRANSFERS	category includes infrastructure related to treatment of water for potable utilisation and infrastructure related to transfer of water between catchments, such as dams, pump stations and treatment works.
RURAL/TRADITIONAL SETTLEMENT	Includes various gradation of settlement densities, with the addition of a variety of agricultural activities such as cropping and grazing of livestock.
RESIDENTIAL	Category includes single and multiple residential units and small holdings, but excludes traditional settlement.
MIXED USE	This category includes conventional urban activities such as, retail, offices, commercial workshops, places of public amusement, restaurants, and warehouses. It further includes fuel filling stations, logistics hubs, and transport focus points that cater for bus and taxi ranks, truck stops etc.
CIVIC AND SOCIAL	Category includes education, health, welfare, social services, places of worship, cemeteries and memorial parks.
EXTRACTIVE INDUSTRY / QUARRYING AND MINING	This category covers areas (land and rivers) used for the extraction of minerals or raw materials and associated business operations, including sand and stone.
INDUSTRY	Category includes manufacturing and warehousing.

4.2 Natural Resources

4.2.1 Natural Resource ECZs

The ECZs and guidelines associated with the District's natural resources have been generated from the Biodiversity Sector Plan for the District. The Biodiversity Sector Plan is a product of Ezemvelo KZN Wildlife which is a step towards the derivation of a Bioregional Plan which will have legal status on the basis of the National Environmental Management Act (No. 62 of 2008). In addition to this purpose, the Biodiversity Sector Plan provides a spatial indication of the areas within the District that will contribute to a lesser or greater extent to the achievement of biodiversity conservation targets. While this biodiversity conservation bias is recognised and respected, it serves as a very useful surrogate for the extent to which the District's natural resource base can produce and deliver vitally important natural life support services.

The relationship between the natural resources of the District and its socio-economic components has been thoroughly discussed in Section 1.3, but is alluded to again here as it is essential to communicate the relevance of well managed natural resources to social well-being and economic resilience. Therefore as the reader is confronted with the conservation categories that are the natural resource ECZs and their associated guidelines, it is important that they are seen from this perspective. In a recent IUCN publication (Ferwerda, 2012) a quote from The Economics of Ecosystems and Biodiversity states that:

"There are no economies without ecosystems, but there are ecosystems without economies..."

The publication continues to state that our economies are based on production methods and consumption patterns that generate jobs and wealth, while simultaneously degrading and destroying the ecosystems that form the very basis of this wealth creation. Healthy ecosystems are at the heart of a sound and sustainable economy. Restoring damaged ecosystems is thus an essential way in which we can reverse the depletion of our primary asset and keep ecosystems functional for future generations.

Within the context of this perspective the natural resource ECZs are presented in three separate maps with the first reflecting the land based or terrestrial resources, the second the fresh water or aquatic resources, and the third being a combination of these. The rationale behind the split presentation is simply to provide ease of interpretation, but it is critically important to acknowledge the intricate linkage between these two components. The implications, positive or negative, of land use and management decisions inevitably manifest themselves in the freshwater environment. For example, where the high altitude grassland areas are kept in good condition they will retain their ability to receive rainfall and to allow it to infiltrate into the ground and recharge the water table. However, where this land cover type is degraded or altered to accommodate some form of development, it ability to perform this water catchment function will be compromised with resultant loss of flow volumes in the natural drainage lines, as well as reduced water quality.

The localities of the natural resource ECZs that are based on EKZNW's Land Use Planning and Management Guidelines are illustrated in the Map Book as Figure 8 - Figure 10 and Table 6 include the following conservation categories for both the land based (terrestrial) and fresh water (aquatic) environments as defined by EKZNW (2012):

Protected Areas (PAs): Protected areas as declaration under NEMPA.

Critical Biodiversity Areas (CBAs): Natural or near-natural landscapes that include terrestrial and aquatic areas that are considered critical for meeting biodiversity targets and thresholds, and which safeguard areas required to ensure the persistence of viable populations of species, and the functionality of ecosystems and ecological infrastructure.

> **Critical Biodiversity Areas: Irreplaceable**: Areas which are required to meet biodiversity conservation targets, and where there are no alternative sites available. (Category driven by species and feature presence)
>
> **Critical Biodiversity Areas: Optimal**: Areas that are the most optimal solution to meet the required biodiversity conservation targets while avoiding high cost areas as much as possible (Category driven primarily by process)

Critical Biodiversity Areas :Irreplaceable Linkages: Areas that are vital to maintain landscape or local corridor, as due to transformation area is the only option for link (pinch point on corridor).

Terrestrial Ecological Support Areas (ESAs): Functional but not necessarily entirely natural terrestrial that are largely required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the critical biodiversity areas. The area also contributes significantly to the maintenance of ecological infrastructure.

Aquatic Ecological Support Area: Functional but not necessarily entirely natural aquatic features that are largely required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the critical biodiversity areas. The area also contributes significantly to the maintenance of ecological infrastructure.

Other natural: All other natural areas not already included in the above categories where the land has not been modified, i.e. ploughed, mined, built on, etc.

Modified / Degraded: Areas with no significant natural vegetation remaining and therefore regarded as having a low biodiversity value (e.g. areas under cultivation).

Modified: Degraded natural: Natural areas that have become degraded through unsustainable harvesting, invasive alien species, erosion, over grazing, etc.

Modified: Old cultivated lands: Areas that have been historically ploughed or put to timber but are now fallow.

Modified: Agriculture: Areas that are currently under cultivation and/or timber.

Built-Up / Settlement: Urban, dense rural settlements, commercial and industrial areas, roads, rail, etc.

While the above categories are listed in order of priority from a biodiversity conservation perspective, it must be noted that from a natural capital and ecosystem services perspective that they must be seen as having the same value. The reason for this is that the processes behind the derivation of the Biodiversity Sector Plan are not based on the full supply-demand relationship between natural capital and the social and economic capital components of the sustainability network (see Figure 2). The science of conservation planning is evolving in this direction, but the products used for this Biodiversity Sector Plan are not yet there. Demand is thus inferred based on the understanding generated through the Status Quo phase of the SEA and reported on in detail in the Status Quo Report.

Figure 8: The Land Based ECZs for the uMgungundlovu District (source: EKZNW, 2011b - see Map Book)

It must be noted that the Fresh Water ECZs include a category known as Aquatic EGSA (ecosystem goods and service areas), but this category is not included in the Guidelines. This is a symptom of the fact that conservation planners are still learning how to integrate the concept of ecological infrastructure into their planning processes. Ecological infrastructure may be seen as any portion of untransformed land which delivers ecosystem services that support social and economic needs. As

such all categories of natural land may be considered ecological infrastructure, but with varying degrees of delivery potential. For the sake of this report the maps have not been adjusted and this anomaly has been allowed to persist and municipal planners and environmental management personnel are encouraged to engage with EKZNW from time to time to obtain updated spatial products and guidelines.

Figure 9: The Fresh Water ECZs for the uMgungundlovu District (source: EKZNW, 2011b - see Map Book)

Figure 10: The Combined Land Based and Fresh Water ECZs for the uMgungundlovu District, after transformation (source: EKZNW, 2011b - see Map Book)

Table 1: Biodiversity land management guidelines of EKZNW's Land Use Management Guidelines (after EKZNW 2012)

		Conservation Category	Terrestrial					Aquatic			Natural Area	Modified/ Degraded area			
			Terrestrial Protected Area	Critical Biodiversity Area: Irreplaceable	❶Critical Biodiversity Area: Optimal	Critical Biodiversity Areas: Irreplaceable Linkages	Ecological Support Areas	Critical Biodiversity Areas: Irreplaceable	❶Critical Biodiversity Areas: Optimal	Aquatic Ecological Support Area	❷Natural Area	Modified: Degraded natural	Modified: Old cultivated lands	Modified: Agriculture	Built-up / Settlement
Land Use Categories															
Non-Urban Development	Agriculture	Irrigated Crop Production[1]	3	3	3	3	2	3	3	3	2	2	1	1	2
		Extensive Crop Production[2]	3	3	3	3	3	3	3	3	2	2	1	1	2
		Intensive Crop Production[3]	3	3	3	3	2	3	3	2	2	2	1	1	2
		Agri-Industry[4]	3	3	3	3	3	3	3	3	2	1	1	1	2
		Intensive Production of Animals and/or Animal Products[5]	3	3	3	3	3	3	3	2	2	2	1	1	2
		Extensive Animal Production[6]	3	1	1	1	1	1	1	1	1	1	1	2	3
		Forestry[7]	3	3	3	3	3	3	3	3	2	2	1	1	2
	Environmental Services & Conservation Areas	Conservation Management and Stewardship	1	1	1	1	1	1	1	1	1	2	2	2	3
		Ecological Infrastructure[8]	1	1	1	1	1	1	1	1	1	1	3	3	3
		Transformed Open Space[9]	3	3	3	2	2	3	3	3	2	2	1	1	2
	Tourism	Low Impact/ Eco-Tourism[10]	2	2	2	2	2	2	2	2	1	1	1	2	2
		Medium Impact Tourism[11]	3	3	3	3	2	3	3	2	2	2	1	1	2
		High Impact Tourism[12]	3	3	3	3	3	3	3	3	2	2	1	1	1
Urban Development & Non-Urban Development	Infrastructure and Services	Airstrip[13]	2	2	2	3	2	3	3	3	2	2	1	1	2
		Roads and Railways[14]	3	2	2	3	3	2	2	2	2	2	1	1	1
		Utilities and Services[15]	3	2	2	3	2	2	2	2	2	2	1	1	1
		Sewerage Works[16]	2	2	2	3	2	3	3	3	2	2	1	1	1
		Water Works Projects and Catchment Transfers[17]	3	3	3	3	2	3	3	2	2	2	1	2	2
	Rural/Traditional Settlement[18]		3	3	3	3	3	3	3	2	2	2	1	1	2
Urban Development	Residential[19]		3	3	3	3	3	3	3	3	2	2	1	3	1
	Mixed Use[20]		3	3	3	3	3	3	3	3	2	2	1	3	1
	Civic and Social[21]		3	3	3	3	3	3	3	3	2	2	1	3	1
	Industry	Extractive Industry / Quarrying and Mining[22]	3	3	3	3	3	3	3	3	2	2	1	2	2
		Industry[23]	3	3	3	3	3	3	3	3	2	2	1	3	1

Key:

1 Compatible activity	Recommended
2 Potential activity	Potential may exist depending on the existing land-use and potential, the current ecological state, and the sustainable nature of the development type in question.
3 Incompatible activity	Not Recommended

❶ Land is been evaluated as a Critical Biodiversity Area, refer to definition of Critical Biodiversity Area: Optimal for further explanation in this regard.
❷ To be noted that loss of land critical biodiversity areas and ecological support areas to other land management objectives will require land to be reassessed in the identified Natural Areas.

LAND MANAGEMENT OBJECTIVES:

Terrestrial Protected Area: Maintain in a natural state with limited to no biodiversity loss.
Critical Biodiversity Area: Irreplaceable: Maintain in a natural state with limited to no biodiversity loss.
Critical Biodiversity Area: Optimal: Maintain in a natural state with limited to no biodiversity loss.
Critical Biodiversity Areas: Irreplaceable Linkages: Maintain in a natural state with limited to no biodiversity loss.
Ecological Support Areas: Maintain ecosystem functionality allowing for some loss of biodiversity.
Aquatic Ecological Support Area: Maintain ecosystem functionality allowing for some loss of biodiversity but without degrading Present Ecological State (PES) category.
Natural Area: Maintain basic ecosystem functionality
Modified/ Degraded areas: Sustainable management.

[1] **IRRIGATED CROP PRODUCTION:** Category includes irrigation of commercial production of crops for both extensive and intensive crop production.
[2] **EXTENSIVE CROP PRODUCTION:** Dry land commercial production of crops over large areas. Excludes irrigated crop production.
[3] **INTENSIVE CROP PRODUCTION**: Intensive commercial production on small areas general 10ha or less which may require infrastructure such as tunnels.
[4] **AGRI-INDUSTRY:** This category accounts for the beneficiation or secondary processing of raw agricultural products.
[5] **INTENSIVE PRODUCTION OF ANIMALS AND/OR ANIMAL PRODUCTS:** These activities involve the concentration of animals for the production of animal products (eggs, milk, meat). These activities also involve associated infrastructure.
[6] **EXTENSIVE ANIMAL PRODUCTION:** Livestock and game production on natural unimproved veld at appropriate carrying capacity.
[7] **FORESTRY:** Commercial timber production.
[8] **ECOLOGICAL INFRASTRUCTURE:** This category includes independent or linked open space areas that are in their natural state and which are providing important ecosystem services within a transformed landscape (rural or urban).
[9] **TRANSFORMED OPEN SPACE:** Transformed passive and active open space which is managed as a public amenity. e.g. parks, sports fields and golf courses, country clubs, equestrian centres/race courses, polo fields.
[10] **LOW IMPACT/ ECO-TOURISM:** Tourism developments located in or linked to sensitive or unique rural environments. Tourism developments in this category have a focus on the natural, cultural and agricultural resources and are in support of or keeping with existing land-use.
[11] **MEDIUM IMPACT TOURISM:** Rural-based tourism land, where activity is in keeping with rural and natural landscape, examples include campsites, B&Bs, small hotels and lodges which are utilised on a temporary basis.
[12] **HIGH IMPACT TOURISM:** This category includes large tourism developments with extensive infrastructure and associated activities. Examples include large hotel and conference centres with various sporting and recreational facilities such as golf courses, arenas, and where tourism becomes the primary economic activity.
[13] **AIRSTRIP:** This category makes provision for aircraft landing and take-off, usually equipped with hangars, facilities for refuelling and repair, and often for small tourism or agricultural related (crop sprayers) use.
[14] **ROADS AND RAILWAYS:** This category covers all major arterial roads including district, provincial and national and railway routes, open areas for the storage and repairs of trains, stations and passenger facilities and warehouses for freight operations.
[15] **UTILITIES AND SERVICES:** Category includes cell phone masts, all types of bulk linear infrastructure, such as power lines and pipelines, and associated infrastructure, such as pump stations and substations.
[16] **SEWERAGE WORKS:** This category includes waste water treatment works and associated infrastructure necessary for the Municipality to treat waste water, and includes package plants.
[17] **WATER WORKS PROJECTS AND CATCHMENT TRANSFERS:** category includes infrastructure related to treatment of water for potable utilisation and infrastructure related to transfer of water between catchments, such as dams, pump stations and treatment works.
[18] **RURAL/TRADITIONAL SETTLEMENT:** Includes various gradation of settlement densities, with the addition of a variety of agricultural activities such as cropping and grazing of livestock.
[19] **RESIDENTIAL -**Category includes single and multiple residential units and small holdings, but excludes traditional settlement.
[20] **MIXED USE:** This category includes conventional urban activities such as, retail, offices, commercial workshops, places of public amusement, restaurants, and warehouses. It further includes fuel filling stations, logistics hubs, and transport focus points that cater for bus and taxi ranks, truck stops etc.
[21] **CIVIC AND SOCIAL:** Category includes education, health, welfare, social services, places of worship, cemeteries and memorial parks.
[22] **EXTRACTIVE INDUSTRY / QUARRYING AND MINING:** This category covers areas (land and rivers) used for the extraction of minerals or raw materials and associated business operations, including sand and stone.
[23] **INDUSTRY:** Category includes manufacturing and warehousing.

4.2.2 Natural Resource Guidelines

Table 6 is an extract from EKZNW's land management guidelines for the uMgungundlovu District and details the applicable land management guidelines associated with the aquatic and terrestrial Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), and other land management units, as categorised by the Biodiversity Sector Plan. The Critical Biodiversity and Ecological Support Area terminology reflected within the KZN spatial planning products conform to the recommendations and outcomes of the November 2012 Bioregional Planning Standardisation workshop[25]. This workshop was convened to initiate the standardization of biodiversity spatial planning terminology, as well as identify the criteria by which this terminology can be spatially defined. The categories, their definitions and associated informing criteria, together with a set of Planning and Management Guidelines comparing these categories with various land use management strategies, and which reflects their relative compatibilities, have been collated into a single document to better facilitate the understanding and interpretation of Ezemvelo KZN Wildlife's biodiversity spatial planning products[26]. The guidelines were specifically developed for incorporation within the KwaZulu-Natal (KZN) Biodiversity Sector Plans and Bioregional Plans as per the national bioregional planning requirements[27]. These state that guidelines must be provided for land use planning and management of biodiversity within identified Critical Biodiversity and Ecological Support Areas.

The columns in Table 6 contain the various possible land uses, with the scores indicating if the proposed land use is **compatible, potential** and **incompatible** for the various polygons. Used in conjunction with the BSP maps detailing the aquatic and terrestrial biodiversity conservation priorities, the guidelines can be used to inform land use planning, decision making and development authorisations.

More specifically the three categories of development appropriateness may be applied as follows:

1. **Compatible**: implies that the development options listed are compatible with the spatial entity and should therefore not require detailed environmental management decision-making processes to confirm compatibility.

2. **Potential activity**: implies that the designated development options are potentially in conflict with the relevant spatial entity and that a pro-active decision can be taken with relative confidence not to proceed with further environmental management assessment processes. However, it is possible that with further investigation and careful design and implementation, compatibility may be achieved.

3. **Incompatible**: implies that the designated developments are in direct conflict with the maintenance of the integrity of the relevant spatial entity and that a pro-active decision not to allow such developments may be taken with a high level of confidence. However, if an exception is required the development application will have to be subjected to extremely rigorous environmental assessment procedures where the mitigation hierarchy will have to be strictly applied.

[25] The SANBI November 2012 workshop with National and Provincial environmental and conservation departments was to standardize terminology and approach in the development of Provincial bioregional plans.
[26] Ezemvelo KZN Wildlife, 'Document Describing the Conservation Planning Terms for the EKZNW Spatial Planning Products', (2012) Version 1.2.
[27] Department of Environmental Affairs, 'Guideline Regarding the Determination of Bioregions and the Preparation of and Publication of Bioregional Plans', published in Government Notice No. 291 in Government Gazette no. 32006 of 16 March 2009.

4.3 Agricultural Resources

4.3.1 Agricultural Resource ECZs

An assessment was provided in the Status Quo report of the agricultural potential of uMgungundlovu and the status of the agricultural resources in the district (Figure 11, Figure 12 & BRU Summary Descriptions available on request). This section of the SEA report provides an indication of the zones that should be used by planners and developers in the district to direct development and in the process safeguard agricultural resources. As noted in the Status Quo report agricultural resources are under pressure in the District and in order to protect land with potential, a broad zonation has been developed based on the assessment of potential emanating from this project.

Figure 11: Bioresource Groups in uMgungundlovu – see Map Book

Figure 12: Bioresource Units in uMgungundlovu – see Map Book

4.3.1.1 Agricultural Potential

The determination of agricultural potential in uMgungundlovu is based on the Bioresource Unit programme originally developed by K. Camp et al at Cedara and then converted into an application by P. Whitwell (BRU Report Writer, version 9.042, 2012) at DAEA Natural Resource Unit at Cedara.

The Bioresource Units together with the Bioresource Groups (defined in the Status Quo) were used as the basis for the determination of land potential in the district. A set of criteria was used (climate, soils, slope, land cover, land use) to identify areas of land in uMgungundlovu which could be considered as having differing degrees of agricultural potential. In terms of this methodology land in the district has been allocated an agricultural potential rating (1-8). Appendix 1: Method used in determination of agricultural potential provides full detail as to the use of this method in land potential determination. The land potential rating forms the basis of the zonation as contained in Figure 13 (BRU Summary Descriptions available on request).

4.3.1.2 Formulation of the Agricultural Zones

Inherent in the Bioresource Units and Groups are a wide variety of types of agriculture broadly inclusive of the following:

1. Arable or land that can be cultivated.
2. Grasslands (natural) that are suited to extensive livestock production.
3. Areas that are suitable for the production of plantation crops such as sugar, timber, bananas.
4. Areas suitable for fruit and nut production.

The types of production best suited to each of the BRUs identified in uMgungundlovu are detailed in the individual reports contained in the BRU Report Writer (2012).

The 8 categories of land potential identified in this project are based on those developed by Smith (1998) and form the basis for the agricultural zoning and are summarised below:

1. Very high potential: No limitations to production of types of agriculture listed in BRUs.
2. High potential: Minor limitations to production may be encountered which relate to slope, soils, temperature and rainfall.
3. Good potential: Minor to moderate limitations to production potential may be encountered due to the factors as detailed in 2. above.
4. Moderate potential: Moderate limitations to production potential may be encountered due to the factors as detailed in 2. above.
5. Restricted potential: Moderate to severe limitations to production potential may be encountered due to the factors as detailed in 2. above.
6. Very restricted potential: Severe limitations to production potential may be encountered due to the factors as detailed in 2. above.
7. Low potential: Severe to very severe limitations to production potential may be encountered due to the factors as detailed in 2. above.
8. Very low potential: Very severe limitations to production potential may be encountered due to the factors as detailed in 2. above.

These land potential categories have been produced for the whole of KwaZulu-Natal. However, it may be noted that in the spatial location of these categories of land potential (Figure 13, BRU Summary Descriptions available on request), there are seven in the uMgungundlovu District. The 'Very High Potential' category does not occur in this district.

Figure 13: Agricultural Potential (1-8 Categories) – see Map Book

Options for the identification of an appropriate set of zones were considered based on CoGTA (2011) and PPDC (2008). In terms of the Guideline for the preparation of Schemes (CoGTA 2011) six zones are identified including: extensive, subsistence, restricted, special, urban and forestry. In the Guidelines for Planning of facilities in KwaZulu-Natal (2008) two zones are identified namely: extensive and intensive agriculture. It is noted that in both of the above guidelines the focus is at scheme level (i.e. local municipal scale). In contrast the SEA and associated agricultural zones are at a district level which by implication is at a broader and more generalized level than the municipal level zonation. It is however, noted that these broader district level zones should provide the context within which agricultural zones at scheme level can be accommodated.

Consequently, and for the purposes of establishing a workable zoning of agricultural resources in uMgungundlovu, at District level, the 8 categories above have been grouped into 4 broad zones which include:

1. High potential includes: very high, high and good.
2. Moderate potential includes: moderate and restricted.
3. Low potential includes: very restricted and low.
4. Very low potential includes: very low.

These 4 zones are included in Figure 14.

Figure 14: Agricultural Zones - see Map Book

The possible alignment of the above zones, based on agricultural potential, with those based on land use management principles is outlined in the table below.

Table 7: Alignment of Agricultural Zones

TYPE	ZONE	DESCRIPTION	STATEMENT OF INTENT
Agriculture	Agriculture 1 and 2 (Agriculture only and Agriculture Traditional)	High potential Moderate potential	A zone that provides for land and buildings where the primary activity is small, medium and large scale arable, livestock, dairy and or commercial forestry and orchard production. In these zones (Agriculture 1 and 2) non-agricultural forms of land use (needs to be defined at scheme level) should not be permitted and further sub-division of land should be avoided wherever possible to limit fragmentation of agricultural land and hence viability.
Agriculture	Special Agriculture	Low potential Very low potential	A zone where the types of agricultural production are not dependent upon land potential. This zone provides for intensive forms of production in appropriate buildings including: greenhouses, poultry units, piggeries. Consideration can be given to other forms of development on this land, particularly that with very low potential, subject to this not contradicting conditions contained in the environmental control zones (BSP).
Agriculture	Urban agriculture	High and moderate potential land in urban areas based on BRU and site assessment	Detail to be provided in schemes
Agriculture	Forestry	Included in Agriculture 1 and 2	

Source of original table: KwaZulu-Natal Land Use Management System. Guidelines for the Preparation of Schemes for Municipalities. CoGTA (2011)

4.3.1.3 Controls

The following *broad controls* have been identified for each of the 4 agricultural zones:

- **High value agricultural land** – owing to the fact that the best agricultural resources are located in this zone the primary consideration is that productive use is made of the agricultural resources in the most sustainable manner possible. This land is regarded as being unsuitable for any form of non-agricultural and or non-conservation related development.
- **Moderate value agricultural land** – owing to the fact that the agricultural potential is somewhat limited in this zone and owing to the fact that there is pressure on agricultural resources in the district; primary consideration should be given to productive agricultural use of this land in the

most sustainable manner possible. However, owing to limitations on its agricultural value there may be areas where restricted forms of non-agricultural development could be considered. However, this should be subject to site specific investigations into agricultural potential as part of the EIA process.

- **Low value agricultural land** – due to the land having limited agricultural potential in this zone both intensive agriculture and non-agricultural forms of development could be considered provided they are not in conflict with the requirements of the Biodiversity Sector Plan and are subject to investigations at site level as part of the EIA process.
- **Very limited value agricultural land** - owing to the very limited agricultural potential of land in this category it is well suited to other forms of development provided they are not in conflict with the provisions contained in the biodiversity sector plan.

These controls will be further detailed in the section dealing with guidelines in this report.

4.3.2 Agricultural Resource Guidelines

Owing to the complex interrelations between types of agriculture, agricultural potential and land use, guidelines have been developed in this section of the SEA which address the different perspectives that should be taken into account by planners, environmental officials and applicants in preparing plans and dealing with development applications.

In order to produce these guidelines 4 broad types of agriculture were identified (arable, plantations, livestock , orchards and degraded lands for rehabilitation) inclusive of small, medium and large scale in traditional and commercial areas. This categorisation derives from the Audit of Agricultural Lands in Traditional areas of KwaZuluNatal (Isik 2012) and is intended to group together similar types of agricultural land use at a district level.

The following guidelines relate to: (i) types of agriculture and landuse; (ii) agricultural potential and types of agriculture; (iii) built environment and types of agriculture. The guidelines are pre-empted by indicators of locality in Table 10, these are then followed by a set of guidelines for officials and applicants to consider in preparing spatial plans and/or considering development applications.

4.3.2.1 Types of Agriculture and Land Use

Table 8 provides an indication of *where the different types of agricultural activities are compatible with activities, have potential with activities or are incompatible* in the District in relation the full spectrum of land uses from protected areas through to built-up areas.

Guidelines:

- No form of agriculture is suited to what is collectively termed important environmental areas (Table 8: Protected areas through to Ecosystem goods and service areas).

- Appropriately managed livestock could be considered on a restricted basis in ecological support and ecosystem goods and service areas.

- Owing to the extent of transformation of land areas under agriculture and settlement in uMgungundlovu (Figure 15) the game and/or livestock farming listed in Table 8 could be considered on a restricted basis in ecological support and ecosystem goods and services areas.

- All types of agriculture are permitted in areas historically and currently under some form of agricultural use. However, the types of agriculture pursued in these areas should be subject to assessment in terms of the BRU information summarised in Appendix 1: Method used in determination of agricultural potential of this report and detailed in the BRU Report Writer. In addition all new applications relating to agricultural development should be subject to detailed site investigations to confirm or if necessary to adjust the findings of these guidelines owing to the variability of local conditions. In addition to this retrospective application of sustainability principles need to be integrated into all agricultural production areas.

- The types of agriculture in built up areas are have potential, particularly small scale enterprises. However, agriculture should form an integral part the urban form and be accommodated in the planning process. However, the location of areas best suited to the different forms of agriculture should be determined by the type of BRUs in which they are located (Figure 12 & BRU Summary Descriptions available on request) and a detailed site inspection to confirm local soil conditions.

- Owing to the high levels of transformation of natural capital in the municipality (Status Quo report) rehabilitation is a recommended activity in all types of agriculture and in all land uses in order to recover that which is necessary to ensure production of ecosystem services necessary to sustain current and future populations in this district.

Figure 15: Areas currently under Agricultural Land Use - see Map Book

Table 8: Types of Agriculture and Land Use Categories

Conservation Category	Terrestrial			Aquatic			Other natural areas	Modified/ Degraded area			
	Protected area	Critical biodiversity area	Ecological support areas	Critical biodiversity area	Ecological support areas	Ecosystem goods and services areas		Degraded lands	Old cultivated lands	Agricultural lands	Built up / Settlement areas
TYPES OF AGRICULTURE											
Small, medium & large scale arable farming (commercial & subsistence)	3	3	3	3	3	2	2	3	1	1	2
Small, medium & large scale plantation farming (subsistence & commercial)	3	3	3	3	3	2	2	3	1	1	2
Game and/or livestock farming (commercial & subsistence)	3	3	2	3	2	2	1	2	1	1	2
Small, medium & large scale orchard farming (subsistence & commercial)	3	3	3	3	3	2	2	1	1	1	1
Rehabilitation	1	1	1	1	1	1	1	1	1	1	1

Key:

1 Compatible activity	Recommended
2 Potential activity	Potential may exist depending on the existing land-use and potential, the current ecological state, and the sustainable nature of the development type in question.
3 Incompatible activity	Not Recommended

4.3.2.2 Agricultural Potential and Types of Agriculture

In contrast Table 9 provides an indication of *where the different types of agriculture identified in the District should be located in relation to the 4 agricultural potential zones*.

As noted in Section 4.3.1 of this report, agricultural potential as determined in the BRUs is inclusive of all types of agriculture included in Table 9. Hence both high and moderate potential land is recommended for the four different types of agriculture at this district scale. It is only at a more localised level (local municipality) that distinctions can be drawn between areas best suited to different types of production in terms of land potential. This can be detailed further at site level down to specific crops that can be grown and the areas that are best suited to these types of production.

At a district level the following broad guidelines are noted in relation to where the different types of agriculture should be located in relation to identified land potential in the district.

Guidelines:

- High and moderate land potential is compatible with the different types of agriculture identified in this project.
- It is advised that low potential land is restricted for the different types of agriculture owing to the fact that many of the forms of agriculture could have long term negative environmental impacts on these areas owing to a variety of factors such as: soils, climate, slope, land cover, etc., which are not favourable for production. This could lead to serious loss of biodiversity and irreversible transformation. However, there may be exceptions to this broad guideline at local level which should be subject to detailed investigations. Examples here could include game/livestock production and/or irrigation in areas where: temperatures, soils, slope and surface water combine to provide suitable opportunities for agricultural development.
- Finally, it is noted that areas with very low agricultural potential are excluded from all forms of cultivation owing to conditions not being suited to this type of production. However, an exception should be made for game and extensive livestock production in accordance with defined carrying capacities and subject to site specific investigations. As in the case of low potential areas there may be exceptions and these need detailed investigation at site level.

Table 9: Agricultural Potential and Types of Agriculture

AGRICULTURAL POTENTIAL	High potential	Moderate potential	Low potential	Very low potential
TYPES OF AGRICULTURE				
Small, medium & large scale arable farming (commercial & subsistence)	1	1	2	3
Small, medium & large scale plantation farming (subsistence & commercial)	1	1	2	3
Game and/or livestock farming (commercial & subsistence)	1	1	2	2
Small, medium & large scale orchard farming (subsistence & commercial)	1	1	2	3

4.3.2.3 Built Environment and Agricultural Potential

Table 10 provides an indication of *where development applications relating to the built environment should be located in relation to the agricultural potential zones* in the uMgungundlovu District.

Guidelines:

- Formal urban, peri-urban and high density rural settlement should not be permitted in high and moderate agricultural potential areas of the District. Where a more detailed view of agricultural potential is required, reference can be made to Figure 13 (1-8 categories of land use).
- It is noted in the table that low density rural settlement related to farming activities could be considered in high and moderate potential areas.
- Any form of non-agricultural development in these areas, particularly that which results in loss of agricultural resources and /or sub-division of agricultural land, should not be permitted in the high and moderate potential areas.
- As indicated in the table a general principle that needs to be followed in spatial planning and in the processing of development applications is that all built environment development should take place in very low potential and to a lesser extent low potential areas of the district thereby safeguarding remaining agricultural resources in the district.
- Where built environments occur in areas of agricultural potential, the integration of small scale agriculture needs to be encouraged within these in the form of communal market gardens and individual homestead gardens; and the same is true even for built up areas in low potential agricultural areas.

Table 10: Built Environment and Agricultural Potential

	AGRICULTURAL POTENTIAL			
Land Use Categories	**High potential**	**Moderate potential**	**Low potential**	**Very low potential**
Urban areas (formal)	3	3	2	1
Peri-urban areas	3	3	2	1
High density rural settlement	3	3	2	1
Low density rural settlement (farm related)	2	2	1	1

4.4 Other ECZ and Guidelines

4.4.1 Water Quality ECZs and Guidelines

In acknowledging the critical importance of the District in terms of its capacity to produce water by virtue of the large portion of the uMngeni -, Mooi - and Mkomazi River catchments that are encompassed within its area of jurisdiction, it was deemed necessary to provide additional spatial controls and guidelines specifically related to water quality. While those provided under Section 4.2 are sufficient to secure natural resource management objectives, the strategic significance of the District was seen as sufficient motivation for additional inputs related to the protection of water. Further to this are the findings of the Status Quo which clearly articulate the water quality challenges which emanate from incompatible land use options that are too close to the main stem rivers, their tributaries and dams. In recognition of the practical limitations associated with buffering every drainage line and dam in the District the main stem rivers and major dams were

selected and were buffered by 100m either side and one kilometre all around up stream of the wall respectively. More specifically the main stem rivers that were selected were the uMngeni, Mooi, Msunduzi and Mkomazi; and the major dams were the Midmar, Albert Falls, Nagel, and Spring Grove. The spatial expression of these buffers is illustrated in Figure 16 in the Map Book.

Figure 16: Water quality control zones for the main stem rivers and major dams in the District (see Map Book)

It must be noted that the introduction of water quality control zones creates a spatial duplication with the aquatic control zones as illustrated in Figure 9 and discussed in Section 4.2.1. Wherever there is a difference between the guidelines associated with the aquatic and water quality control zones, the default planning response needs to revert to the guideline option that reflects the precautionary principle, i.e. that which would be the more conservative of the two options. The guidelines to be read with the water quality control zones are provided in Table 11.

In addition to these guidelines it must be noted that activities in the water quality control zones are severely constrained in respect to their potential to impact on water quality and therefore the following are also relevant and must be adhered to by planners:

- Only activities that can demonstrate how they would not further compromise water quality and that would result in positive impacts on water quality should be undertaken.
- All activities must make use of advanced effluent management and treatment systems within this ECZ.
- If a development is proposed within this ECZ, studies must be undertaken to delineate the occurrence of wetlands and to assess the functionality of any wetland areas on the site or in close proximity to the site, as is the requirement outside of this ECZ at the discretion of the relevant authorities.
- Site specific development buffers around delineated wetlands and watercourses, in excess of general standards, should be established within which development should not be allowed to encroach.
- Development should not encroach within 100 metres of the full supply level of the main water supply dams or within the 100 year floodline (whichever is larger), unless exceptional circumstances permit.

Table 11: Water quality guidelines

Land Use Categories			Water Quality Category	
			Main Stem Rivers	Major Dams
Non-Urban Development	Agriculture	Irrigated Crop Production	2	2
		Extensive Crop Production	2	2
		Intensive Crop Production	2	2
		Agri-Industry	3	2
		Intensive Production of Animals and/or Animal Products	3	3
		Extensive Animal Production	1	1
		Forestry	2	2
	Environmental Services & Conservation Areas	Conservation Management and Stewardship	1	1
		Ecological Infrastructure	1	1
		Transformed Open Space	2	2
	Tourism	Low Impact/ Eco-Tourism	1	1
		Medium Impact Tourism	2	2
		High Impact Tourism	3	2
Urban Development & Non-Urban Development	Infrastructure and Services	Airstrip	2	2
		Roads and Railways	2	2
		Utilities and Services	2	2
		Sewerage Works	2	2
		Water Works Projects and Catchment Transfers	2	2
	Rural/Traditional Settlement		3	2
Urban Development	Residential		3	2
	Mixed Use		3	2
	Civic and Social		3	2
	Industry	Extractive Industry / Quarrying and Mining	3	3
		Industry	3	3

Key:

1 Compatible activity	Recommended
2 Potential activity	Potential may exist depending on the existing land-use and potential, the current ecological state, and the sustainable nature of the development type in questi
3 Incompatible activity	Not Recommended

4.4.2 Air Quality ECZs and Guidelines

Based on the air quality findings as captured in the Status Quo Report, i.e. that there are significant local air quality issues within the Msunduzi basin as a result of winter temperature inversions coupled with the basin topography; and broader climate change related issues based on excessive levels of greenhouse gas production and extremely limited carbon sequestration capacity for the District as a whole; it is essential that air quality ECZs are determined and delineated. Unfortunately the resources available for the SEA were insufficient to accommodate this, and it is recommended that it be included in subsequent iterations. It is possible that the Climate Change Response Strategy commissioned for the District may also provide an added basis from which to substantiate the need for further air quality work.

What would be envisaged is that air quality is significantly improved through the development and implementation of an Air Quality Management Plan for the District as required by Section 15 of the Air Quality Act. This would require the application of air quality modelling technologies on the basis of a comprehensive inventory of emission sources, all of which would need to be carried out by a professional air quality service provider. The outcome of this work would then need to be integrated into the next iteration of the SEA and SEMP.

4.4.3 Slope

4.4.3.1 Slope ECZs

A slope map has been produced for the District to provide an indication of where the slope guidelines discussed below are relevant. The map is included here as Figure 17 and has been derived from the digital terrain model for the District using the 20m contour intervals. It is recognised that this product has little value as a proactive decision support tool as the relevance of slope is more appropriate at a finer scale and then at the five meter contour interval. It has been provided however simply as an indication of the fact that slope is an important consideration while also providing a reference point for the slope guidelines provided below.

Figure 17: The slope map for the District based on 20m contour intervals - see Map Book

4.4.3.2 Slope Guidelines

The slope map (Figure 17) was produced at the District scale, using a 20m contour interval. This is to give a broad indication of slope constraints and is not sensitive enough to be used at the project level. All development applications should therefore be subject to a finer-scale slope analysis, i.e. at the 5m contour interval. The guidelines provided below are however relevant and are based on slope categories that begin with the steepest and move through to the more gentle slopes. Where reference is made to floodlines it must be noted that these should be determined with climate predictions in mind and should not be based on historical climate records. Extreme caution should also be taken in narrow valleys which should rather be kept as green corridors because of increased flood risk.

4.4.3.2.1 Extremely Steep Slopes

Extremely steep slopes (greater than 35%) limit the types of development that may occur on a given site. While modern engineering has made it possible to address slope issues, the cost of mitigating slope impacts may affect the financial feasibility of developing a site within this zone. Development on steep slopes also increases potential erosion risk and run-off impacts, and may also be visually intrusive within the landscape. In terms of development, this zone must be avoided for all types of development.

Land use in this zone should focus on open space and aesthetic appeal. Land use that results in the clearing of vegetation on steep slopes is not recommended as it is likely to result in erosion and land degradation. Land capability classifications should be conducted to determine which agricultural activities may occur on site.

4.4.3.2.2 Steep Slopes

Steep slopes (26 to 35%) limit the types of development that may be placed on a site. While engineering methods may allow for a development to occur on the site, these methods may prove to be too costly. Development on the site should only occur if it is deemed safe, is necessary and no other alternatives exist. Development on steep slopes also increases potential erosion risk and run-off impacts, and may also be visually intrusive within the landscape - *developments should not be allowed to break the skyline*.

Activities such as agriculture on steep slopes should be avoided as the costs of ensuring that land degradation and erosion does not occur, is likely to outweigh any benefit from agricultural production. Land capability classifications should be conducted to determine which agricultural activities can occur on site.

Only up-market low density development that is able to demonstrate how founding stability has been addressed; and, how erosion and land degradation will be prevented through landscaping and stormwater management, should occur on steep slopes, provided a 'touch the earth lightly[28]' philosophy is adopted where minimal cut and fill occurs only for access requirements and once again, *developments should not be allowed to break the skyline*. It is critical that development proposed for this area also demonstrate maintenance of landscaping and storm water management for the life of the development.

4.4.3.2.3 Moderate Slopes

Moderate slopes (9 to 25%) allow for some developments to occur on site. Geotechnical studies should be undertaken to determine geotechnical conditions on site prior to the development of these areas. Land capability classifications should be conducted to determine which agricultural activities can occur on site. Activities such as moderate – high cultivation on moderate slopes may

[28]Based on the Aboriginal proverb, *touch the earth lightly* expresses concern for nature, taking special measures to safeguard the surrounding landscape where buildings hover above the earth on steel stilts. Because there is no deep excavation, the soil and surrounding vegetation are protected.

result in land degradation and erosion, and is therefore undesirable. Should activities be proposed that may result in large scale clearing of vegetation, it must demonstrated what measures will be put in place to rehabilitate the area and prevent soil erosion. Activities that will result in increased hard surfaces such as roads, roofs, etc. must also include detailed planning for the control of storm water in this zone to ensure that increased run-off does not result in negative impacts on the flood regime downstream.

4.4.3.2.4 Gentle Slopes

Gentle slopes (4 to 8%) do not constrain development. Development on gentle slopes cost less to build and can be developed at higher densities with less effect on erosion. Geotechnical studies should be undertaken to ensure that the site can accommodate the proposed development, i.e. the site should have no potential for slope instability features (landslides, mud flows); easy excavation for foundations and installation of services (normal depth of 1.5 m required); foundations above the ground water level or perched water table, with adequate permeability; development above the 1:50-year floodline; adequate surface and subsurface drainage conditions, with minimal erosion potential; no problematic soils (for example heaving clays, compressible clays, sand with some collapse potential, or dispersive soils) that will require expensive remedial measures, as well as no damaging differential subsidence or movement (less than 5 mm total movement at the surface allowed); no potential for surface subsidence due to the presence of dolomite (sinkholes) or undermining; and an area large enough to accommodate the projected population growth. Land use in these areas is not constrained by slope.

4.4.4 Cultural Heritage

4.4.4.1 Cultural Heritage ECZs

The map that was produced for the Status Quo Report depicting the point localities of cultural heritage resources in the UMDM has been inserted as Figure 18 in order to provide reference for the discussion on the ECZ guidelines in Section 4.4.4.2.

Figure 18: The point localities of known cultural heritage resources in the District – see Map Book

4.4.4.2 Cultural Heritage Guidelines

During the Status Quo Phase a Cultural / Archaeological Heritage specialist study was undertaken. A number of cultural / archaeological heritage sites were identified and mapped (see Figure 18). It was noted in the Status Quo and is re-emphasized here again that the specialist report stated that the data provided was based on known records, but that there are many cultural and archaeological sites within the UMDM that have not yet been documented.

Developments taking place within a cultural / archaeological heritage site must take care not to detract from or negatively impact on the heritage of the surrounding area. Amafa aKwaZulu Natali

must be consulted prior to the development of any area identified as having cultural heritage significance.

Impacts to cultural heritage sites are dependent on the type of cultural heritage site and the interaction with activities proposed. For example a building older than 60 years may be used for a number of activities so long as the facade and general character of the building in not compromised. Equally, the existence of archaeological sites does not preclude development of an area but any earth moving activities will need to be managed to ensure that cultural artefacts are not lost. It is therefore suggested that any development within cultural heritage sensitivity sites or areas takes into account potential cultural heritage significance in the proposed development.

Activities should be compatible with the aesthetics and social values of the area and should not negatively impact on the cultural or historic importance of the area or any specific cultural heritage resources identified.

It is possible that additional sites are identified outside of the Cultural / Archaeological Heritage sensitivity sites or areas. For all development applications, cultural heritage assessments must be undertaken in accordance with the requirements of the KZN Heritage Resources Act. Amafa aKwaZulu Natali should be consulted prior to any transformation of buildings older than 60 years. If any potential heritage objects are identified during any earthmoving activities, all development activities should immediately cease, and may only proceed with the approval of Amafa aKwaZulu Natali.

Activities should not negatively impact on the cultural or historic importance of any area or any specific cultural heritage resources identified.

5 ASSESSMENT OF THE DISTRICT SDF IN TERMS OF THE SUSTAINABILITY CRITERIA

5.1 Introduction

In this section of the SEA the aim is to inform the alignment process between the SDF and the SEA at a district level. Since the current SDF is in the process of revision the approach used will be to identify gaps and concerns in the current SDF in order to inform the revision of the future spatial plan for the District.

In addition, this section of the SEA will be used as the basis for the development of actions in the SEMP to guide spatial planning and the processing of development applications in the District in the immediate to short-term.

5.2 Spatial Planning Principles Applied in the SDF

5.2.1 Spatial Planning Context

Based on a review of the Msunduzi SEA (2010) and the uMgungundlovu SDF (2007) the following guiding principles underpin the Msunduzi and uMgungundlovu SDFs:

Spatial structuring elements:

- Nodes are the concentration points for developmental activities;
- Corridors are considered to include main roads and arterials;
- 'Ribbon' development is not implied in corridors – it is only in special circumstances that this could be considered;
- Location and nature of settlement including formal and informal, urban and rural;
- Environment and open space (passive and active);
- Urban edges;
- Mixed use developments.

In the SDFs it was indicated that the key purpose of nodes was as follows:

- To optimise bulk infrastructure
- Discourage urban sprawl
- Ensure compact and efficient urban areas
- Protect agricultural land
- Guide location for investment by investors
- Promote social and economic development
- Accommodate future demand for development

Underlying these spatial principles was the use of metropolitan space to bring together complimentary land uses aimed at compacting the urban form (Dave Dewar cited McCarthy 2007), particularly of greater Pietermaritzburg. This included the concept of intra metropolitan and inter-urban transportation routes structured in a 'lattice' of different routes aimed at optimising accessibility whilst at the same time minimising congestion.

It was further noted in the SDF that major intersections on the N3 corridor between Camperdown and Howick-Mooi River would become key economic drivers (new nodes) in the future in the hierarchy of nodes and corridors which characterises the sub-region. These intersections were seen as important in terms of their ability to generate growth and employment owing to ease of accessibility. It was further argued that future growth in these nodes would derive from non-agricultural and non-primary sectors of the economy – primarily services, manufacturing, construction and tourism.

Despite the economy of the sub-region becoming increasingly dependent upon non-agricultural activities, agriculture as a sector will continue to play a major role in the future, particularly in rural areas of the district where there are limited alternative economic opportunities. This is particularly true of the inter-nodal zones where agriculture was seen as being the bedrock of local economic activity and essential for the sustainability of secondary and tertiary nodes in the district.

In the SDF it is evident that in the conceptualisation of open space that a wide range of environmentally friendly land cover categories have been identified including: conservation areas, environmental management areas, forests, river systems, floodlines, agricultural resources etc. These were in turn linked to the Ezemvelo KZN Wildlife's Conservation Plan which allowed for the

allocation of a value of these areas in terms of achieving conservation targets. The need to discourage urban sprawl was also noted using urban boundaries as defined edges. The notion of protecting 'green' areas was further supported by concepts of densification in identified urban areas and the identification of rural nodes in central places in rural areas (particularly traditional) which could be used to centralise the provision of services for dislocated communities.

5.2.2 Comments and Interventions

Changes in the district that need to be taken into account since the 2007 SDFs include: population growth in both urban and rural areas, increased levels of unemployment and economic hardship, economic slowdown and environmental thresholds being exceeded. Furthermore there are increasing pressures for development along the N3 which in places has resulted in the emergence of areas of 'ribbon' development and the progressive loss of agricultural land and critical biodiversity areas. One of the key indicators of growth beyond sustainable limits has been the need to construct the Spring Grove dam as an intermediate engineering solution to challenging water shortages in the District and beyond.

Section 9 of the Status Quo report provided an assessment of the district and local spatial plans and the associated gaps that were identified in the process. These gaps have been reviewed in the SEA with the view to highlighting the issues that need to be taken into account in the revision of the SDF. This is accompanied by suggested interventions to overcome these alignment issues.

The following alignment issues were noted:

5.2.2.1 Spatial and environmental planning concepts

- The overall spatial and environmental planning concepts for the district, encapsulated in the 2007 SDF, continue to be relevant and serve to re-enforce the location, nature and type of development taking place.

- The limitation to these planning concepts is that they appear not to have always been applied by municipalities in responding to development pressures. This has resulted in the contradictions and maladies which characterize land use in the district, as outlined above.

  The intervention, therefore, involves greater recognition and buy-in from capacitated municipal planning staff and councils to ensure that these planning principles are upheld in future in the interests of sustainability and public good which at pressure appear to be under threat.

- A further limitation to application of the principles is that whilst the EKZNW C-Plan in 2007 was used to provide a framework for sustainable use and management of the environmental resources of the district, the continued loss of natural capital (Isik 2011) suggests that some more fundamental interventions are required to ensure effective management, rehabilitation and protection in future.

  This will involve regulating environmental controls and creating awareness about sustainability issues in order to achieving the following: sustainable use of natural capital; reviewing the direction that the sub-regional economy should follow in future (green); assessing the use of

space in terms of defined sustainability criteria, and building environmental controls into scheme clauses.

5.2.2.2 Corridor and transport route alignment

- The type and level of corridor (transportation) identified in the SDFs varies from one municipality to the next. Definitions of different types of corridors and their functions also need to be standardised.

- The priority rating of corridors (transportation) also varies between municipalities based on their individual interpretations of the future for their areas.

  Priority rating also needs to be standardised.

- Sub-regional tourism routes need to be identified and aligned at district level for inclusion in local municipal SDFs.

  This alignment process needs to account for the potential pressures that these routes could bring to bear on sensitive areas in the district where such development is not appropriate (e.g. Nottingham Road to Underberg route).

5.2.2.3 Zoning

- There is no consistency in the identification or zoning of high priority agricultural land in the SDFs.

  In the revision to the district SDF, agricultural resources have been identified spatially and accorded a rating in terms of value for different types of agriculture. The location and valuation of agricultural land as contained in the SEA should be reflected in the SDF.

- There is limited cross boundary alignment of agricultural resources

  Whilst the bioresource system has been used to identify agricultural potential in the SDF, interpretations about the type and location of agricultural land differ and hence the cross boundary alignment between municipalities is necessary on the basis of the material contained in the SEA.

- Land use zoning in the SDFs varies between municipalities.

  Effective alignment requires standardisation drawing from the District SDF. This is particularly important in seeking to protect areas of high biodiversity importance.

5.2.2.4 Biodiversity

- There is not always alignment between the SDFs and the SEA in terms of macro and micro corridors, national biodiversity corridors, protected areas, critical biodiversity areas, natural

areas and stewardship sites. Definitions of these aspects of biodiversity are contained in the EKZN Conservation Spatial Planning Products (2012).

In order to resolve this in the future SDF, reference should be made to the EKZNW Biodiversity Sector Plan (2012) and /or the SEA.

- Limited reference is made in the SDFs to the protection of water production areas in the district and alignment between municipalities of important aquatic systems

  In the revision of the District and Local Municipal SDFs care should be taken to align the aquatic biodiversity areas (see Aquatic Biodiversity map in the Status Quo report) in order to avoid destruction of critical water production areas in an already water stressed district.

5.2.2.5 N3 Corridor and Nodes

- The actual footprint of proposed development in nodes along defined corridor routes is lacking in the current SDFs and thus the likely impact on the environment cannot easily be determined

  The SEA provides an indication of where development should or should not go in these areas based on biodiversity, agricultural and cultural heritage (limited data available) indicators.

- Perhaps a more fundamental issue identified during the course of the detailed work on nodes is the question of edges. It appears that nodal development incrementally 'eats' into surrounding agricultural and green areas resulting in the merging of industrial, commercial and residential development in certain areas of the N3 corridor (ribbon development): whilst from an economic development perspective that may be necessary to accommodate economic growth, this is not always the case from environmental, agricultural, cultural and experiential perspectives.

  Consequently, in future planning and implementation of the SEA/SDF, careful attention needs to be devoted to the question of edges as documented in the work recently completed by Isik (Isikhungusethu Environmental Services , 2012). The indications from this work are that the typology of edges needs to be applied selectively to different conditions in the district which could include:
  - Containment and consolidation of edges to urban areas
  - Escarpment edges
  - Ecological corridor edges
  - River edges
  - Forest and fire edges
  - Agricultural edges
  - Scenic route edges

- A further issue that has arisen during the course of this project is the location and nature of future development in the district. As noted, the current SDF focusses on nodes and corridors with limited reference to development options/limitations in the remainder of the district.

In revisions to the SDF the SEA should provide the basis upon which sustainable development should proceed in future throughout the District based on the sustainability framework, the environmental control zones and associated guidelines.

5.3 Assessment of the District SDF in terms of the Sustainability Framework

The Sustainability Framework (SF), dealt with above in the SEA (Section 3.5), has been used as the basis for the assessment of the SDF. In future revisions of the SDF the key issues and SF should be used to guide planners in what environmental components to include in the planning process. The following assessment is based on the SF format and indicates level of inclusion of criteria on the basis of the following:

Yes: the issue has been dealt with;
Partially: the issue has not been fully dealt with;
Limited: the issue has only been dealt with on a limited basis; and
No: the issue has not been dealt with

This assessment indicates the gaps that need to be addressed in future revisions of the SDF. Note that the format that has been used here follows on from that used in the SF and is based on the Strategic Priorities of the National Strategy for Sustainable Development (NSSD1).

NSSD 1 Strategic Priority 1: Enhancing systems for integrated planning and implementation

Key Environmental Issue: Limited capacity and systems for integrated planning and implementation to achieve sustainable development	Integration into uMgungundlovu SDF
Insufficient intergovernmental co-operation and co-ordination for effective environmental governance; Poor monitoring and evaluation systems to assess progress towards sustainability; Insufficient resources and capacity made available for environmental management; Limited integration of sustainability into development planning.	
Sustainability Objective	
Enhanced and effective environmental governance, institutional structures and systems to achieve integrated planning and implementation.	
Sustainability Criteria	
Environmental sustainability criteria are integrated into Policies, Plans, Projects and decision making.	Yes, now outdated (Vol 1,2)
Co-operative environmental governance structures and mechanisms promote integrated planning and ensure efficient and effective implementation of environmental functions and responsibilities.	Partially (Vol 2)
Financial resources and capacity enable the implementation and management of environmental functions and responsibilities.	No
Municipal Capital investment projects comply with relevant environmental legislative requirements.	Yes (Vol 1,2)
Communities are informed, empowered and involved in the process of democratic environmental governance.	Partially (Vol 2)
Access to environmental information is facilitated and encouraged.	No
Monitoring and evaluation systems assess and report on the progress towards sustainability.	No

NSSD 1 Strategic Priority 2: Sustaining our ecosystems and using natural resources efficiently

Key Environmental Issue: The degradation of land and natural resources	Integration into uMgungundlovu SDF
Inappropriate land use and poor land management is resulting in land degradation, the loss of natural resources and reduced potential for the provision of ecosystem goods and life support services. This includes the loss of agriculturally productive land and a decline in biodiversity which has significant social and economic impact.	
Sustainability Objective	
The use of natural capital is compatible with the maintenance of ecosystem functionality and natural resources are protected and restored.	
Sustainability Criteria	
Areas identified as being essential for the persistence of biodiversity and for the provision of ecosystem goods and services are valued, protected and continually enhanced.	Yes (Vol 1,2)
Degraded areas are identified, rehabilitated and managed to promote land productivity.	Partially (Vol 1)
High potential agricultural land is protected and rehabilitated for sustainable agricultural production.	Yes (Vol 1,2)
Agricultural production is enhanced and increased through environmentally sustainable agricultural practices.	Partially (Vol 2)
Areas of geotechnical, geological or instability risks are identified and avoided in land development.	No
Compact land development patterns use land efficiently.	Yes (Vol 2)

Key Environmental Issue: Excessive water demand exceeds available supply	Integration into uMgungundlovu SDF
Current water demand from the uMngeni catchment area is exceeding sustainable levels and is stressing the aquatic ecosystems. Rapid urban & industrial expansion and population growth is increasing demands and this is compounded by inefficient water use and wastage. Degraded catchments and aquatic ecosystems diminish the ability of the natural systems to sustainably supply water. Dams and interbasin-transfer schemes increase costs of providing water to the consumers and negatively impact on overall river health and natural systems	
Sustainability Objective	
The ability of aquatic resources to provide water is maintained within the limits of sustainability.	
Sustainability Criteria	
Wetland areas, streams and rivers are protected, rehabilitated and managed to maintain ecological functioning.	Yes (Vol 1,2)
Flood prone areas are managed to promote ecosystem goods and services, to minimise flood risks and impacts.	No
Water demand management results in minimised water loss and optimised water conservation.	No
Everyone has access to the minimum supplies of potable water needed to maintain their health and well-being.	Partially (Vol 2)
Catchment and river management policies and guidelines integrated into land use and development planning.	Yes (Vol 1,2)
Equitable and fair access to water supplies is provided for all water users.	Yes (Vol 1,2)

Key Environmental Issue: Reduced Water Quality	Integration into uMgungundlovu SDF
Land degradation, Industrial effluent, and, poor sewerage, solid waste and storm-water management are impacting on water and aquatic ecosystem quality. This is resulting in declining social and economic conditions including increased health risks and costs; decreased river health; increased water treatment costs; increased risk of liability to the Municipality; increased water charges; and, decreased investor interest.	
Sustainability Objective	

Water quality in all aquatic ecosystems in the District is significantly improved and maintained.	
Sustainability Criteria	
Bacteria and pathogens in all aquatic systems do not pose a significant risk to health and wellbeing.	No
Nutrient concentrations and loads in all aquatic systems reverse current unacceptable trends of eutrophication.	No
Aquatic ecosystems are in a functional and healthy state.	No

NSSD 1 Strategic Priority 3: Towards a Green Economy

Key Environmental Issue: Economic growth that is not linked to sustainable resource use and environmental impact	**Integration into uMgungundlovu SDF**
Resource and ecosystem degradation due to over-exploitation of natural capital. Persistent poverty, unemployment, social dependency and inequality. An economy that is based on intensive resource consumption is depleting non-renewable and renewable resources beyond sustainable levels.	
Sustainability Objective	
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 Criteria	
An environmentally sustainable economy promotes distributional equity, is resource efficient and provides for the rehabilitation and sustainable management of natural capital.	Partially (Vol 1,2)
Absolute poverty is eradicated and the wealth gap is reduced.	Limited (Vol 1)
A low-carbon economy that relies on clean, renewable and efficient energy sources and transport options.	No
A resource efficient economy that optimises its use of water while significantly reducing waste generation.	Yes (Vol 1)
An equitable and broad range of employment opportunities exist that provide people with an income to support themselves and their families.	Partially (Vol 1,2)

NSSD 1 Strategic Priority 4: Building Sustainable Communities

Key Environmental Issue: Inefficient spatial planning and urban design; inadequate provision of basic services including water, sanitation and waste management; and, insufficient recognition of Cultural Heritage	**Integration into uMgungundlovu SDF**
Rapid population growth and urbanisation increases pressures on Municipalities to sustainably supply services. A large number of poverty stricken people live in informal settlements which are detrimental to their health and well-being. Safe, clean and pleasant environments are not being provided. Increased demand for development is placing pressure on the optimal use of land and the provision of sustainable services and infrastructure. Urban design does not optimise resources efficiency particularly in relation to electricity usage, water and sewer provision, waste management and accessibility of public transport. The lack of equitable and universal access to basic services such as effective waste removal and the provision of appropriate sanitation and water services impact on human health and well-being and result in a deterioration of the quality of life. Waste recycling initiatives are not easily accessible to the majority of people in the District. Limited recognition of both natural and social heritage resources and of the spiritual, cultural and economic value of cultural heritage sites. Eurocentric biased knowledge of cultural heritage and insufficient data for all elements of cultural heritage undermines social cohesion and understanding.	
Sustainability Objective	
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 Criteria	
Environmental sustainability and ecosystem goods and services are integrated into development planning.	Partially no reference to eco-services (Vol 1,2)
Sustainable municipal bulk service infrastructure and facilities are available, maintained	Partially (Vol 1,2)

and managed, to sustainably meet the needs of residents and business.	
All residents have appropriate, secure and affordable housing and access to basic services in order to meet their basic needs and to live with dignity.	Partially (Vol 1)
Communities vulnerable to environmental risk are identified and strategies are in place to minimise these risks.	Yes (Vol 1)
Environmental justice and equity must be pursued so as to ensure that environmental impacts do not unfairly discriminate against any person or community.	No
Community services, facilities, community parks and open spaces are accessible to all people.	No
An efficient, safe, integrated and convenient network of public transport, bicycle routes and pedestrian access is provided.	Partially (Vol 1,2)
Safe, clean and pleasant environments are provided to protect and enhance human health and well-being and improve overall quality of life.	Limited (Vol 1)
Resources use is minimised through energy efficiency, reduced water demand, efficient waste management and the provision of accessible public transport.	No
Cultural and natural resources and sense of place are protected and maintained.	Partially (Vol 1,2)
Indigenous ecological and cultural knowledge is developed and integrated into planning and management processes.	No

NSSD 1 Strategic Priority 5: Responding effectively to climate change

Key Environmental Issue: Localised poor air quality and greenhouse gas emissions contributing to Climate Change	Integration into uMgungundlovu SDF
Poor air quality issues localised within the Msunduzi and N3 corridor area is resulting in increased human health and well-being risks. Greenhouse gas emissions contribute to global climate change. A decrease in natural capital diminishes the District's ability to sequestrate carbon and mitigate predicted climate change impacts.	
Sustainability Objective	
Air quality is significantly improved, Greenhouse gas concentrations are reduced and there is resilience to climate change within communities and ecosystems.	
Sustainability Criteria	
Ambient air quality standards for the protection of human health and well-being and natural systems are maintained.	No
A low-carbon economy is achieved through energy efficiency, the use of alternative technology and reducing the dependence on fossil fuels.	No
Greenhouse Gas emissions are reduced to levels in line with Cabinet approved targets.	No
Natural systems are restored and maintained to be suitable for the sequestration of carbon and mitigate for climate change.	No
Climate change adaptation strategies effectively build and sustain social, economic and environmental resilience to climate change.	No

6 STAKEHOLDER CONSULTATION

6.1 Relevant Authority Consultation

This SEA Report went through six iterations in the process of obtaining the approval of the PSC for its release for public review. The first draft was produced in July 2012 and the PSC signed off on the 6th draft in December 2012. A detailed record of the comments received during this process is captured in the Comment and Response Report which is included as Appendix 2 to this report. This report reflects the fact that the process began with the compilation of the Sustainability Framework as a point of departure, which then evolved into the full report including the ECZs and Guidelines.

What was also relevant to the evolution of the SEA Report was the emergence of the National Strategy for Sustainable Development (DEA, 2011) during the process. After the Sustainability

Framework had been fashioned on the basis of the key environmental issues identified during the Status Quo phase of the project, it was agreed that restructuring it according to the Strategic Priorities of the NSSD1 would give the SEA and the Sustainability Framework greater relevance and the potential for stakeholder buy-in, particularly from the perspective of the government stakeholders.

Another primary aspect of the report that drew much discussion and iterations was the spatial element, i.e. the ECZs and their associated Guidelines. While the latter remained relatively unaltered through the process, the former required a number of amendments as well as much discussion to ensure that they were understood and in a format that could be easily integrated into local government planning tools and mechanisms such as IDPs and SDFs. An aspect of this that was of particular importance addressed the question of water quality and to this end, a dedicated ECZ map was produced as discussed in Section 4.4.1.

6.2 Public Consultation

Public consultation on this report began with a presentation to and workshop with the UMDM Environmental Forum on 27 June 2012. This was preceded by the distribution of a "Discussion Document" which essentially summarised the key environmental issues within the UMDM and provided a framework for how the SEA was to be formulated and how the members of the Environmental Forum could engage with the process, in addition to the workshop. The inputs from the workshop helped to shape the vision and to confirm that the main environmental issues had been identified.

Thereafter the SEA report was put through a number of iterations with the Project Steering Committee until the latter were happy to release it for public review and comment. The registered stakeholders were informed of its availability for review and were invited to provide comments through email notification sent out on 5 December 2012. In recognition of the looming Christmas Holidays, the deadline for comments was set as the end of January 2013. In order to remind the registered stakeholders of the need for their review and comment on the report a full page article was published in the Witness on 15 January 2013. The article also carried notice of two public meetings scheduled for 30 and 31 January 2013. It was hoped that the same article would be published in the Echo, but when this did not materialise and efforts to contact the journalist failed, a decision was taken to publish an advertisement in the Isolezwe. This was done on 29 January 2013.

The style of the public meetings that was selected is known as an "Open House". In recognition of the difficulties experienced in selecting a meeting time to suit most stakeholders it was decided to use this format which sets a wider window of opportunity to engage, i.e. from 14h00 to 19h00 at a convenient venue. This thus allows stakeholders to select a time that suits them and relevant members of the project team are available to engage one-on-one with those stakeholders who choose to make use of the opportunity. The Open House meetings were held on 30 January at the Fern Hill Hotel and at the UMDM Council Chambers on 31 January. Further email reminders for these opportunities were sent to the registered stakeholders on 30 January and they were encouraged to provide comment via email if they were not able to attend one of the public opportunities.

The Open House meeting of 30 January began with a formal presentation to and discussion with a group of stakeholders who had taken the time to arrange themselves into a group for this purpose. A fruitful two hour discussion ensued with the over-arching comment being support for the report and with most questions related to the legal standing of the report and the capacity of the implementing agencies to take ownership of and follow through with its recommendations. The Open House meeting of 31 January had four stakeholders make use of the opportunity to engage with the project. In all instances broad context was provided and specific issues were discussed.

The overall view expressed by those who used the opportunity to review and comment on the report was that they were satisfied that it was robust and addressed all the relevant environmental issues that prevail within the UMDM. A number of reservations were expressed and these are captured in the summary table below (see Table 12). Every written comment received from stakeholders was reviewed by the Service Provider and where relevant the report was amended accordingly. Every stakeholder who provided written comment/s was provided with a detailed record of the Services Provider's response/s with a request to ensure that they were satisfied that their comments had been sufficiently considered and adequately responded to. In all instances the stakeholders confirmed that they were satisfied. A detailed record of all comments and responses has been compiled by the Service Provider and provided to the UMDM for later reference if so required (see Appendix 2).

As can be seen from Table 12 there was broad support for the SEA report with reservations related to its legal status and the capacity of relevant organs of state to implement. While some of these concerns can be addressed in the SEMP, it must be noted that it will depend heavily on the UMDM and its strategic partners to take ownership of both the SEA and SEMP and ensure its implementation and upgrading to an EMF.

Table 12: A brief summary of the key comments and responses raised during the public consultation process.

COMMENT	RESPONSE
What mechanisms are in place to ensure implementation of the SEA and SEMP?	Once the SEA and SEMP have been adopted by Council they will have legal standing according to Administrative Law. However, in order for them to have legal standing according to NEMA, the SEA needs to be translated into an EMF.
Much of the UMDM surface area falls under the control of Traditional Authorities and the Ingonyama Trust Board (ITB). What has been done to ensure that this component of society have been included in the process of developing the SEA?	It is recognised that this is a shortfall of the process and arrangements will be made to immediately remedy the situation and ensure that there is at least ITB representation on the PSC.
To what extent has capacity limitations within the implementing agencies been taken into consideration.	The first component of the Sustainability Framework deals specifically with this aspect and it will be carried through to the SEMP in terms of identifying the need for capacity building in terms of human, financial and skills development.

7 CONCLUSION

In conclusion it is reiterated that the SEA carries a long-term vision (40 – 50 years) for the District in terms of taking it from the current Status Quo to a Desired State of the Environment. The extent to which the vision for the Desired State will need to be revised and the frequency of revision will depend upon the extent to which the SEA influences District and Local Municipal planning, as well as drives implementation within the District. If one assumes the best-case scenario where the District and its Strategic Partners embrace the SEA and have the necessary capacity to implement it fully, then the revision requirements will be less onerous. A middle of the road scenario which could entail acceptance of the SEA but limited capacity for implementation will mean that a revision will be required in the medium term and will probably entail an increase in the extent of limitations placed on development activities and opportunities. A worst-case scenario where a business as usual approach is maintained and the traditional drive for economic growth over-rides the sustainability principles of the SEA will mean that a revision will be required in the short-term. Such a revision will probably entail a severe tightening of restrictions and further loss of development opportunities.

Assuming the best case scenario, the next and final step for this SEA process is for the compilation of the Strategic Environmental Management Plan (SEMP). This plan is designed to take a short-term (five year) bite out of the SEA through the identification of priority areas that require action in the short-term, and the formulation of these actions into detailed action plans that will form the core of the SEMP. This process will be one that is fully inclusive of all relevant officials within the District and Local Municipalities, as well as those from related national and provincial departments, i.e. the District's Strategic Partners. This approach is designed to ensure that the action plans within the SEMP will be realistic and attainable while enjoying ownership of those involved in its compilation.

Lastly the SEMP will also attempt to balance the need for it to be realistic and attainable, with the realities of the implications if the required actions are not implemented. As such the SEMP will provide a robust foundation upon which the District and its Strategic Partners can motivate for the

necessary financial, human and technical resources required to ensure that the priority actions are implemented effectively and within the specified time frames.

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Appendix 1: Method used in determination of agricultural potential

1 Process for Allocating Land Potential

1.1 Introduction

As was noted in the Status Quo report for this project this assessment of agricultural potential was based on updated Bioresource Groups (BRGs) and Bioresource Units (BRUs) produced jointly by the Natural Resources Unit at Cedara (DAEA) and Isikhungusethu (Pty) Ltd for the uMgungundlovu Municipality.

Most of the information used in the process of determining land potential is extracted from the Bioresource Unit (BRU) Inventory Programme (Bru Report Writer, version 9.042 : Piers Whitwell). This includes climate and soil information, while further interpretations based on the BRU inventories, is extracted from "A Land Potential Classification for KwaZulu-Natal" (Guy and Smith 1998). This includes the broad land, climate and soil class potential for each BRU.

1.2 Broad Land Potential of BRUs

Because the variation in soils and microclimate within a BRU can be significant, only a broad land potential can be given for a BRU. Once the soil of a specific area has been determined, the soil class, slope and climate class of the area can be used to provide a good indication of the land potential of that area (or ecotope).

1.3 Climate Class

Climate classes were determined by Guy and Smith (1998) for each BRU and these classes have been used in the process of determining land potential. Because of wide variations of climate class of BRUs within the BRGs, it was decided to standardize the climate classes according to BRGs but allow variations of one class, up or down from the standard class.

1.4 Soil Groups

Broad soil groups have been determined for each BRU and given as a percentage of the area of the BRU. For example, if well-drained soils make up 38% of the BRU, this figure is obtainable in the BRU inventory but not the percentage slope or effective rooting depth. The figure, together with the figures for the other soil groups represented in the inventory, therefore gives a broad indication of the potential of the BRU. This does need to be considered with reference to the climate class.

1.5 Arable land

The term "arable land" or more commonly referred to as 'arability', refers to an area of soil that can be cultivated in a sustainable manner. Appropriate conservation measures are necessary for

sustainability. Arable land falls into certain groups of soils, has a slope that can be safely cultivated and has an acceptable effective rooting depth. The following listing provides the soil groups and their symbols used in the determination of arable potential.

Potential arable soil groups and their symbols

Soil Groups/Capability Classes :

A : Humic topsoil

B : Well-drained

Includes sub-soils that are red (a-pedal and structured), yellow-brown, red over yellow-brown, sand, E over yellow-brown, E over red, red over mottled, and a topsoil mix with weathering rock.

C : Alluvial deposits

D : Mottled and moderately drained

Includes subsoils that are yellow-brown over mottled, yellow-brown over gley, yellow-brown over hard plinthic, and E over weathering rock.

F : Black topsoil

Includes black clays with blocky structure, stratified alluvium, weathering rock, and mottled subsoil.

H : Weathering rock (Glenrosa form)

Topsoil intermingling with weathering rock.

Effective rooting depth

Over 500 mm

1.6 Land Potential Assessment procedure

This assessment procedure is based on the agricultural potential of the full range of types of agriculture dealt with in the report. BRUs have been used to identify potential for arable, plantation and orchard crops with reference to the BRGs for veld types and associated carrying capacities (recommended).

1.7 Initial process

In the process of classifying an initial broad land potential for a BRU, climate class and arability (based on soil capability classes) were used in this project. This is a weighted average of land potential of the BRU owing to the fact that it has to take all variations of slope and soil types into account together with the climate class of the BRUs.

For the purposes of this project it was decided that climate class would be measured against the amount of arable land in each of the BRUs identified in the municipality. Table 6, provides an assessment of land potential based on climate capability classes and the percentage of arable land in the BRUs. These are given in different classes of arability from over 80% arable down to under 10% arable land within a BRU. The higher the percentage of arable land within a climate class, the higher the land potential. Table 14 and Table 15 provide a description of the climate classes in relation to resources groups whilst Table 16 provides a description of the Land Potential classes.

Table 13: Land Potential Classes : Climate Capability Classes and Percentage Arability

Arability	Climate capability							
	C1	C2	C3	C4	C5	C6	C7	C8
>80%	1	1	2	2	3	3	4	4
65 – 79%	1	2	2	3	3	4	4	5
50 – 64%	2	2	3	3	4	4	5	6
40 – 49%	2	3	3	4	4	5	5	6
30 – 39%	3	3	3	4	4	5	6	7
20 – 29%	4	4	4	4	4	6	6	7
11 – 19%	5	5	5	6	7	7	7	8
<10%	5	6	6	8	8	8	8	8

As can be seen in Table 16, eight land potential classes have been identified for uMgungundlovu. These have been spatially located in the municipality (Figure 13) on the basis of the following colour coding:

Very high potential	Dark green
High potential	Dark green
Good potential	Light green
Moderate potential	Orange
Restricted potential	Yellow
Very restricted potential	Light red
Low potential	Dark red
Very low potential	Dark red

The following table provides a description of the climate capability classes outlined in Table 13 above.

Table 14: Climate Capability Classes

Climate Capability Class	Limitation rating	Description
C1	None to slight	Local climate is favourable for good yields for a wide range of adapted crops throughout the year
C2	Slight	Local climate is favourable for a wide range of adapted crops and a year round growing season. Moisture stress and lower temperatures increase risk and decrease yields relative to C1
C3	Slight to Moderate	Slightly restricted growing season due to the occurrence of low temperatures and frost. Good yield potential for a moderate range of adapted crops.
C4	Moderate	Moderately restricted growing season due to low temperatures and severe frost. Good yield potential for a moderate range of adapted crops but planting date options are more limited than C3.

Climate Capability Class	Limitation rating	Description
C5	Moderate to severe	Moderately restricted growing season due to low temperatures, frost and/or moisture stress.
C6	Severe	Moderately restricted growing season due to low temperatures, frost and/or moisture stress.
C7	Severe to very severe	Severely restricted choice of crops due to heat, cold and/or moisture stress.
C8	Very severe	Very severely restricted choice of crops due to heat and moisture stress. Suitable crops at high risk of yield loss.

1.8 Standardised Climate Capability Classes

The Climate Classes codes have been standardized for each BRG (and the BRUs within the BRGs) and this is given in Table 15. Should the climate class given for a BRU in its inventory vary by one class, up or down, from the standard class, the BRU inventory class will be applied to the BRU. If, however, the class varies by two classes, the class will be adjusted up or down to within one class of the standard class. For example, if a BRU which lies within BRG 5 (standard Climate Class C3) be given as C4, it will be accepted. If it is given in the BRU inventory as C5, it will be adjusted to C4 (within one class of the standard class).

Table 15: Standard Climate Classes for Bioresource Groups

Bioresource Group	Standard Climate Code
1	C1
2	C3
3	C2
4	C4
5	C3
6	C4
7	C3
8	C4
9	C5
10	C7
11	C4
12	C5
13	C6
14	C6
5	C3
16	C5
17	C4
18	C5

Bioresource Group	Standard Climate Code
19	C4
20	C5
21	C7
22	C8
23	C8

Table 16 provides a description of the potential land classes identified for Umzimkhulu municipality.

Table 16: Description of Land Potential Classes

Land Potential Class	Description of Land Potential Class Permission must be granted before virgin land is cultivated in terms of the Soil Conservation Act
L1	**Very high potential**: no limitations. Approved and appropriate contour protection must be implemented.
L2	**High potential:** very infrequent and/or minor limitations due to slope, soils, temperature or rainfall. Approved and appropriate contour protection must be implemented.
L3	**Good potential:** infrequent and/or moderate limitations due to soil, slope, temperature or rainfall. Approved and appropriate contour protection must be implemented.
L4	**Moderate potential:** moderately regular and/or severe to moderate limitations due to soil, slope, temperature or rainfall. Approved and appropriate contour protection must be implemented.
L5	**Restricted potential:** Regular and/or moderate to severe limitations due to soil, slope, temperature or rainfall. Approved and appropriate contour protection must be implemented.
L6	**Very restricted potential:** Regular and/or severe limitations due to soil, slope, temperature or rainfall. Non arable.
L7	**Low potential:** Severe limitations due to soil, slope, temperature or rainfall. Non arable.
L8	**Very low potential:** Very severe limitations due to soil, slope, temperature or rainfall. Non arable.

1.9 Land potential of the identified polygons (arable areas)

As stated above all areas that have been cultivated in the past, that have slopes under 8% and do not have erosion problems or residential areas located on them, were marked as potential lands or project areas. At the scale of the full municipality, it not feasible to identify the soils of these areas at a field level. This will have to form part of a detailed field investigation for each of the sites prioritised in this project. The soils identified, and the climate of the area, will determine whether the area can be developed.

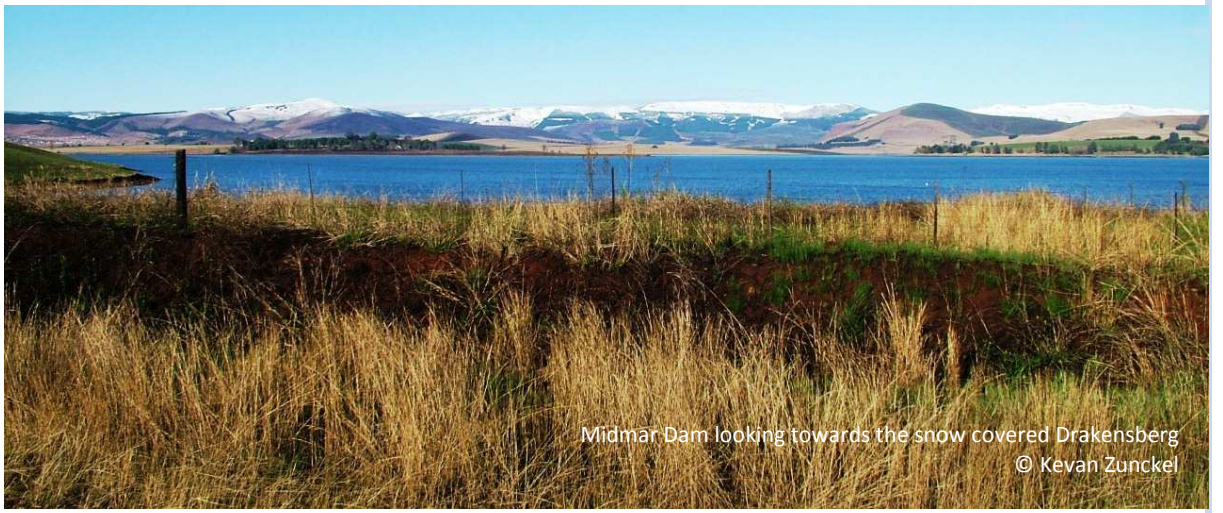
The initial land potential of these arable areas will have the same as that identified for the BRU in which they are situated. An adjustment will have to made if the soils are found to be unsuitable for cultivation. An adjustment can also be made if it is possible to irrigate the lands. This applies to all areas which have Class I, II or III soils as indicted in the spreadsheet and then according to Table 17: Increase for irrigation according to soil classes.

Table 17: Increase in Land Potential (LP) according to soil class

Soil class	Increase to LP
I	I
II	I
III	II
IV to VIII	No increase

Note: A final decision on the potential of the land can only be made after a soil survey has been carried out in the field.

Appendix 2: Comment and Response Report



Midmar Dam looking towards the snow covered Drakensberg
© Kevan Zunckel

uMgungundlovu District Municipality Strategic Environmental Assessment and Strategic Environmental Management Plan – COMMENT & RESPONSE REPORT

Reference: Tender No. 18/2010

February 2013

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Citation

When used in a reference, this report should be cited as follows:

ISIKHUNGUSETHU ENVIRONMENTAL SERVICES. February 2013. Comment & Response Report for the uMgungundlovu District Municipality Strategic Environmental Assessment Report, Isikhungusethu Environmental Services (Pty) Ltd in association with Zunckel Ecological + Environmental Services.

Table of Contents

1 SEA Framework

CONTRIBUTOR	COMMENT	RESPONSE
Kevan Zunckel to Mandisa M. Khomo; Nosipho N. Ntanzi Wednesday, June 13, 2012	This email serves to provide a record of the fact that a presentation on the UMDM SEA and SEMP was made to the **Economic Development and Planning Committee** yesterday and that a number of questions were posed and responded to. The presentation has been uploaded to Drop Box from where you can access it in the folder "UMDM Project Team" to which you have been invited. The questions raised and the responses are as follows:	
	What is the relationship between the SEA and the SDF?	The SEA will make recommendations as to how the SDF needs to be revised to ensure alignment.
	Does the project team envisage that by-laws will be required to enforce implementation of the SEA and SEMP?	Existing legal frameworks provide substantial legal substance to many of the aspects that will emerge from the SEA and SEMP, particularly as far as relevant strategic partners such as Water Affairs are concerned. However, where gaps are identified through the SEMP process, it is possible that these may be filled with new by-laws. In addition to this it is recommended that the SEA be converted to an EMF which will provide greater legal standing to the final product.
	As far as the Green Economy is concerned, can we provide examples of the green jobs that can be created?	The restoration of natural capital such as the work that has been carried out by Working for Water and related initiatives is the clearest example at present. However, caution must be exercised in recognition of the need

CONTRIBUTOR	COMMENT	RESPONSE
		for green jobs to be socio-economically and environmentally sustainable. History has shown us that these types of initiatives have been driven with short-term goals and in order for them to be sustainable, they need to be implemented within a long-term time frame.
	Does the SEA project include an aspect and/or recognise the importance of environmental education?	One of the project outputs is to be environmental awareness material pitched at a low tech level to support implementation and environmental education has been identified by the UMDM Environmental Forum as a key issue that requires action. The SEA and the Environmental Forum processes are being aligned and therefore this issue will be addressed.
	The committee chair thanked the presenters and confirmed that a collaborative effort is going to be required to ensure successful implementation of the SEA and SEMP. Please let me know if you agree that the above captures the discussion at the meeting so that we can include this in the Comment and Response Report for the SEA.	
Nosipho N. Ntanzi to Kevan Zunckel	Thank you Kevan. Noted. Again thank you for such an explicit presentation, much appreciated. Nosipho	

CONTRIBUTOR	COMMENT	RESPONSE
Riaz Jogiat Fri 2012/06/22	My apologies for the lateness in getting these comments to you:	
	1. The work to date seems to lack linkages to the district's development context and its pressures within which natural capital must be protected, restored and conserved. The interdepence between development and the environment and the manner in which we set out to manage this process is what will make the assessment strategic otherwise we will be putting out a strategy that is unrealsitic and unimplementable as it seeks to protect natural capital in isolation to its socio economic context.	On the contrary, this work has highlighted the link between the current state of natural capital and societal wellbeing and economic resilience. The challenge now lies with the implementing agencies to take this message further into the various local government planning mechanisms. The report also highlights the opportunities inherent in the green economy and therefore brings a more direct link between natural capital and the need for economic opportunities.
	2. I see no reference to the targets and likely impacts of the New Growth Path, the National Development Plan (NDP), the Provincial Growth and Development Plan nor a summary of the development pressures / plans at a localised / district level which will or is already collectively creating the drivers of economic change in the district.	This will be attended to in the next revision of the SEA.
	3. There can be little chance of environmental sustainability where there are high levels of poverty and inequality as there is in our district, our country and our planet. This underlying social condition will create ongoing pressures for development as it does in our context and the SEA needs to acknowledge this in a more realistic manner. To me we need to know where are the projected development pressures on natural capital going to be in the UMDM for the next 20 to 30 years and will it be acceptable for development to proceed in these areas given the status of the ecosystems in such area and where are alternative areas where such pressures can go so as not to negatively impact on natural capital. So the linkages between long term development and environmental planning need to be apparent in the process or else the process can be deemed to be bio centric and unrealistic in our context.	This has been catered for in the SEA/SDF alignment.

CONTRIBUTOR	COMMENT	RESPONSE
	4. The framework suggests that poverty is not at same levels as other parts of our province - let us accept we have a serious poverty, unemplyment and inequality problem - the reality we should work from is that only 42% of our economically active population across the country is in employment whilst in other emerging economies it is near 61% and that in rural areas emplyyment rate is down to 29% (NDP) and that unemployment levels amongst people under the age of 30 is also 42% (National Treasury: Youth Subsidy document) and that in 2008 half of all employed people earned less than R2500 pm and that 40% of national income went to wealthiest 10% (New Growth Path document) whilst in the poorest 10% of households - 80% had no employed persons (National Treasury: Youth Subsidy document)	This is more of a statement and hence does not need any response.
	5. Given this situation the NDP and the NGP all propose stimulating the following labour absorbing sectors - the ago industrial sector, mineral and metals sector, manufacturing, construction/infrastructure, finance, retail and tourism and the green economy. We are therefore facing a future were policies and investment will be made into all these sectors and not the green economy alone. The SEA needs to see a future that is more complex with much of the same drivers that we have today putting much the same pressure with even more impacts on natural capital - the question I think the SEA needs to answer is how do we face such a future and still protect natural capital.	Every effort has been made in the SEA to indicate, spatially, areas where further development should take place and the conditions under which this should and should not occur. The SEA also provides useful guidelines on how to limit the impacts of proposed future growth and development: it also states clearly that the limits to sustainability have already been compromised. This exacerbates vulnerabilities of society and the economy. This will be further dealt with in S1.3.3 of the SEA.
	6. In summary I think the sustainability framework must bring across the need for a more complex and mixed approach to sustainability	This has been done in the context of human rights to an environment that does not increase their

CONTRIBUTOR	COMMENT	RESPONSE
	that includes a human rights approach (social foundation where peoples basic needs are met) alongside that of a environmental rights (protected ecosystems/planetary boundaries).	vulnerabilities. The reality has been detailed in the Status Quo report, i.e. over-drawn natural capital bringing about a significant level of threat to societal wellbeing and can therefore not be compromised any further.
Judy Bell Environnemental Consultant Mon 2012/06/25	These are my comments on the discussion document – I hope they add value.	All seven comments below are recognised as providing support to the sustainability framework and therefore do not require further detailed responses. In addition to this, the detail in the sustainability framework covers much of what has been suggested in these comments.
	Loss of natural capital to agricultural development 1. The District comprises some of the most important ecosystems providing free goods and services to us and the province. It is vital to identify and protect the areas which provide us with clean air, water and soil to grow our food and support our livestock. We also need to understand which areas will provide us with flexibility to adapt to Climate Change and protect too. This will help us to provide our residents with the ability to support themselves and their families as job opportunities in the formal sector dwindle.	
	Unsustainable range management 2. The replacement of absorbent surfaces with hardened surfaces and structures that increase stormwater runoff is a double whammy. We need to ensure that all developments accept this as a fact and minimise the runoff footprint and minimising the loss of absorbent surfaces. This will reduce flooding, erosion and the reduction in water quality, which in turn increases costs of water treatment, while contributing to the silting up of expensive dams. There is no point in spending vast sums on building new dams if we continue to fill them up with solids from developments upstream. We must save our dam capacities, just like we save airspace in a landfill. We need to encourage farming with nature, not in a way that destroys, but builds the capacity of ecosystems to support us. This	

CONTRIBUTOR	COMMENT	RESPONSE
	includes the use of fire as a management tool that further degrades soil quality and ecosystems. We need to look at alternatives to fire-break burning for fire prevention strategies.	
	Invasive alien plant infestations 3. Invasive plants must be managed by using the carrot and the stick, but municipal land must be cleared as a priority. It is unfair to expect landowners to do this work, when the state does not. The listed species must be attacked in a co-ordinated manner, without landfilling any waste. The output from this work must be composted and wood used. Landowners must have EASY access to EPWP incentives, training programmes and herbicide assistance. This must be advertised and made known so more people can do the right thing. Support of Conservancies doing this work must be formalised. Emerging species must be publicised and eradicated with vigour from the District. We cannot afford to lose ecosystems, their goods or services due to apathy or a lack of resources or capacity.	
	Excessive water demand / demand > supply 4. By-laws that enforce Water Demand Management must be introduced and implemented in the District. All spheres of government must apply this with fervour in all their buildings and activities (leaking taps, faucets, etc..). Set a good example and maintain the standards!! The CPT Metro has a very good by-law for this – available on their website. They are very serious about water and all the big users have been visited and their usage trended for improvements.	
	Reduced water quality	

CONTRIBUTOR	COMMENT	RESPONSE
	5. Draft and publish by-laws to deal with trade effluent and other industrial/commercial emissions in an integrated and enforceable manner, that is equitable and sustainable. Ensure monitoring and enforcement is undertaken by trained professionals, who understand the issues, especially cumulative impacts. Unresolved problems to be referred to the provincial/national authorities where necessary. Ensure Environmental Management Inspectors are employed in the District.	
	Poor air quality 6. Upgrade existing development nodes to ensure that urban sprawl is avoided. For example, the CBD of PMB, Hilton and Howick need revitalising to prevent flight to untransformed areas. Put in incentives to refurbish and renovate, not develop green field sites.	
	Loss of agricultural land 7. Prevent any further loss of untransformed land and agricultural land. This needs to be an unambiguous message. Ensure environmental-economic assessments compare apples with apples – ensure ecosystems, their goods and services are costed appropriately. EIA's must not be about mitigation, but the maximum benefit for all. We must guard against developments that favour the developer, but create bubbles of debt for everyone else, including the natural capital and natural infrastructure. Developments need to also be transformed to take into account a new way, in line with the economic and environmental crisis. There has to be a different way to do things – we must nurture "business unusual".	
Pam Hayes DART 28 June 2012	Thank you for a very good enviro forum yesterday. Under environmental health there are many issues - this is one of them	Thanks for responding to our call for folk to engage with the SEA process and for this interesting information.

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	- I have put a quote here which is from the doc below. I really feel the SEA needs to address the effects of enviro degradation in terms of burden of disease - so using a public health or community health approach may be useful. I do have references if you are interested in pursuing. "Many of the major diseases – and dysfunctions – that have increased substantially in prevalence over the last 40 years seem to be related in part to developmental factors associated with either nutritional imbalance or exposures to environmental chemicals. The Developmental Origins of Health and Disease (DOHaD) concept provides significant insight into new strategies for research and disease prevention and is sufficiently robust and repeatable across species, including humans, to require a policy and public health response. This White Paper therefore concludes that, as early development (in utero and during the first years of postnatal life) is particularly sensitive to developmental disruption by nutritional factors or environmental chemical exposures, with potentially adverse consequences for health later in life, both research and disease prevention strategies should focus more on these vulnerable life stages...”	I think that what we need to realise and push into processes like the SEA and the Enviro Forum, is that a healthy environment will reduce the risk and societal costs of many diseases, and in order to ensure a healthy environment we need to secure the integrity of our natural capital so that it can deliver critically important ecosystem services (a relevant example being increased winter baseflow providing dilution services to deal with water quality and reduced risk of water-borne diseases), we need to ensure that the support systems within our living environment are able to pro-actively deal with aspects that contribute to health risk (such as waste management), and we need to ensure that we rapidly bring about changes in the way that we live so that we demonstrate a shared responsibility towards others and the natural environment (Penny referred to respect yesterday). The SEA will certainly add waste management to the list of issues that need to be reflected in the sustainability framework, and we can explore the possibility of bringing health services on as strategic partners to ensure that there are specific actions related to these aspects in the SEMP. In addition to this we must also not lose sight of the possibility of using health related aspects as indicators and targets for the achievement of certain natural capital related objectives. A classic example is the trade in watershed

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		services that New York City entered into with farmers in the catchment of the city's water supply where sales in medicine to treat tummy ailments reduced drastically as a result of good catchment management. Not to mention to huge savings the city made on not having to build very expensive water treatment infrastructure, i.e. millions of dollars go into catchment management as opposed to billions that would have gone into water treatment. This SEA and Enviro Forum process provides us with an opportunity to begin making changes in the way we do business and live our lives so that the District becomes a sought after place to live and make a living.
Ross Haynes Sunday, July 08, 2012	I have been aware of the UMDM Sustainability process but have not kept abreast of it. I have, however, just finished reading the SEA Sustainability Framework discussion document that was distributed with the agenda for the mid-June UMDM District Environmental Forum. This message is just to compliment and congratulate you on a SUPERB piece of work! Your pulling together so much so succinctly was pure artistry, and your introduction and presentation of the choices concerning the future road was a masterpiece - not to mention your beautiful use of the English language!. Work like yours gives me hope for the future of our local environment and for our planet.	Comments acknowledged and appreciated.

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	Two specific points: 1. In Howick we are busy exploring the possibility of developing a Howick Urban Conservancy. Your Sustainability Framework offers much to this initiative in terms of its approach and parts of the content . I intend drawing from your document (with due acknowledgement) in focusing our efforts and am so grateful that I happened to read it now. 2. I intend sharing the discussion paper with the Midlands Conservancies Forum (MCF) in case they have not yet seen it. It is SUCH relevant reading! And so encouraging! In your discussion paper you make mention of other reports. I am keen to get access to two in particular - the UMDM Status Quo Report and Ground Truth's Biodiversity Sector Plan for the district - if they are public documents. I could not find/access either of the reports via the Internet. Do you have e-copies which you can share?	
Ross Haynes to Riaz Jogiat Sun 2012/07/08	While singing Kevan Zunckel's praises (see below) I thought of you and feel that you deserve equal accolades and compliments for, as I understand it, spearheading the SEA and SEMP process. This kind of forward thinking is SO ESSENTIAL and, knowing what I do of you, I feel that the importance of the information and the need for clear choices will not be falling on deaf ears. I wish you the courage and perseverance necessary to see the task through, knowing that it is not an easy road that has to be followed. I am also grateful to Sibu who I believe has the vision and I feel offers you the oh-so-necessary support in this process. I am also sharing my message to Kevan with you to share the information contained therein about plans that are afoot here in Howick. Saves me writing them twice!	As above.
Lyn Archer	I have had a quick scan and see that there are several statements that relate to actions that may require UW inputs. I will circulate the report and obtain input from our Water Quality and Planning units and try and	I am sorry that you have not been involved and that UW's representation has been a bit thin. Unfortunately we will not be able to reschedule

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Umgeni Water Mon 2012/07/23	send you something before the meeting on the 3rd.	but really need you guys on board as we are pushing the water aspect of the District very hard. We still have a lot of work to do, especially as far specific action planning is concerned with the SEMP, so it would be good to address UW representation soon. I hope you can get someone to come on the 3rd.
	Is Alka Ramnath involved?	These are the folk we have including you, Sindi Luthuli & Pumi Ndlovu. I have spoken to Sindi a few times on the phone but have had no further feedback from her.
	The problem I see is that on our side we are divided into systems based on District municipalities. My area is now Illembe/ North Coast. The one for uMgungundlovu (SaziCele) has resigned. Sindi needs to advise who should do uMgungundlovu. I am sorry for the run around. I will raise the concern at our next meeting. I am interested so where possible do appreciate being copied on the info. Unfortunately our unit is required to coordinate a sustainability awareness day for UW on the same date as your next meeting which of course involves everyone from our unit. If there are any changes I'll certainly try and attend.	Thanks for the update and sorry you guys won't be able to be there. However, please implore your colleagues to read the draft and to comment as soon as possible. We have tried to take a very strategic focus on water from an ecological infrastructure perspective and it would be good if UW could come in support of this and help to move the District in the right direction. If you need input at your next meeting I may be able to make a presentation, as you guys are key to the process.

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	I will speak to Sindi. A presentation may be the way forward as there are several units in Umgeni Water that would require input to the SEA: Water Quality and Operations who handle the Blue drop/ Green drop as well as dam releases, Planning who handle water resource development and also input to hydrology and dam releases and our environment unit which looks at sustainability plans, environmental audits etc. I will keep you posted on her thoughts.	

2 SEA Report

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Comments arising at the 5th PSC Meeting on the Second Draft SEA Report 3rd August 2012	K. Zunckel presented the 2nd draft of the SEA report.	
Nosipho Ntanzi	1. The request to integrate comments from the Environment Forum and include issues raised at previous PSC meeting was highlighted. SP responded by saying that all of these comments were responded to in the revision of the strawdog that was presented last time as well as inputs from the Environment Forum were also integrated in Section 2: ANALYSIS OF THE STATUS QUO and specifically, Table 3:The analysis of information provided by the Status Quo towards the identification of sustainability objectives and a vision for a desired state of the environment.	SP to provide a summary of key issues in Section and move Table 3 to an Appendix.KZ
	2. Slope analysis map shows old boundaries.	Noted and municipal boundaries adjusted.
Jan van der Vegte uMngeni Municipality	The ToR emphasised that the SDF must be evaluated in the SEA with implications and recommendations made to assist in the development of a new SDF.	We will include indications as to how the SEA can be used in the development of the new SDF in S6.3 of the report.
Ian Felton DAEARD	A number of issues were raised in the last PSC and were put in writing that hasn't been addressed. A number of fundamental problems must be addressed before distributing the SEA for public comment. There will be put in writing but the broader issues were highlighted as follows:	
	1. LA21 principles are not included. Good municipal planning.	We will include in the introduction further context for

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		the SEA inclusive of NSSD, LA21 and PGDS.
	2. Need to frame the SEA within the National Strategy for Sustainable Development (NSSD) and with the 2012 KZN Provincial Growth and Development Strategy (PGDS), both of which have a whole range of objectives.	As above.
	3. Some concerns with the 3. Sustainability Framework: Sustainability Objectives are interventions, not objectives. These must be clear statements of what you are trying to achieve (intent). PGDS has this and SEA needs to be aligned with PGDS & NSSD.	Noted for review.
	4. Section 1.3 Sustainability: Align analysis with 3 pillars needs to be written for the audience – most will be lost on Cllrs and others with limited experience on environment. Needs complete rethink of what goes into Table 4.	SEA focuses on restoring the resilience of natural capital and role that it plays in society and the economy. Review structure and try to make it more coherent. This is a technical document for officials and hence there is a risk in simplification. Will prepare an Executive summary for the final version.
	5. Environment Forum issues are not adequately dealt with in the SEA. Doesn't come through clearly enough, i.e. land reform, being politically sensitive, needs careful wording. Land reform (80% population need to own 80% of land) is not causing the problem, it's the implementation thereof.	EF issues are included in the analysis and many of these will be dealt with in the SEMP. Include paragraph in Table 3 S2.6b (Land use).
	6. Section 3. Vision needs to be informed by and lead on from the NSSD & PGDS.	Dealt with as above. The SEA vision is compatible with the NSSD vision as well as with the PGDS vision. Include all 3 visions (district SDF, NSSD & PGDS) in the section on context.

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	7. Limits of Acceptable Change are derived from Law & society. There are indicators already defined in the NSSD & PGDS.	Noted and the LACs will be checked accordingly.
	8. Objectives are scattered. Align issues under 4 pillars or 5 strategic directions as per NSSD. Same targets are needed.	Noted and will be dealt with. The SEA is fully compliant with the NSSD strategic priorities. However, we will look at the best way of reflecting this in the sustainability framework.
	9. Social aspects: Include the following sections in the Sustainability Framework around poverty, environmental education, quality of life, governance, waste management, cultural heritage.	**Poverty** to be addressed ITO the green economy. **EE** will be addressed as a separate policy and action plan as well as in the SEMP. **Quality of life** is inherent in the entire sustainability framework. **Waste management** noted and a separate sustainability objective will be articulated. **Cultural heritage** noted and a separate sustainability objective will be articulated.
	10. ECZs – slope & cultural heritage not relevant at the district scale. Missing water quality, water usage, air quality, and agriculture.	**Slope**: noted needs to be included as a point of departure for more detailed work as stipulated. **Cultural H**: It is relevant and hence should not be excluded. **Air quality**: in order to do this, we need additional resources to produce air quality control zones. **Remainder**: these are included in BSP control zones (ECZs).

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	11. Legal procedures – how much value does the process add? Intent of SEA is to integrate sustainability. Mechanism to do that is missing. SEA needs to be a sustainability appraisal for the implementation of all projects, plans and programmes. Need a section explaining how to assess the projects, plans and/or programmes against the sustainability objectives.	Exclude from SEA and revise S6.3 accordingly. Mechanism to do appraisal will be revised in S1.2.
	12. Guidelines – Biodiversity: Significant concern around working around recommended, restricted and unsuitable. There is a big difference between environmental management and biodiversity decision-making. E.g. nuclear power station.	Noted BSP: guidelines will be reviewed..
	13. How to address existing developments is not possible or practical. Have compliance mechanisms in place. Massive undertaking. Legal acceptability?	Can't confuse proactive and reactive environmental management practices. The SEA is clearly proactive and while we recognize that dealing with existing developments may not be practical the SEA would be incomplete and flawed if it did not provide for this aspect. Practical implementation will be considered in the SEMP.
	14. Alignment of SDF with SEA. Wording at start. Strategic Assessment with SDF, not alignment. No assessment of strategic level drivers. Where is development going? i.e. Ashburton has been identified in the SDF as a good location for development. SDF needs to assess whether it is a good location to put a node. Need drivers i.t.o. corridors. Not best direction for development to go.	We believe that these issues have been adequately addressed.
	15. Definitions should be at start of doc. Informs how to read further.	Noted will do.
Rodney Bartholomew Msunduzi Municipality Environment	1. Figures have been supplied as separate component to the SEA. Maps should include the figure number on the map.	Figure numbers are on the title of each file which relate to the figure number in the report. As the SEA report is revised and updated, figure numbers change. It is logistically difficult to keep these current within the maps so the status quo will be maintained.

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	2. New PDA draft legislation is out for comment. SP is to look at it to see what major changes might influence SEA. It includes a specific requirement for the environment. There is still work to be done but SP should pick up on these and include in the SEA.	Beyond scope of work of this project and its time frames.
	3. Vision & Framework (Thresholds, targets & indicators): needs to be strong link between all. TT&Is must be captured for action plan to monitor compliance. Look at in more depth. IAPs have others which aren't captured.	The sustainability framework provides the basis for the SEMP. The TT&I will be carried through to the SEMP which will include much greater detail i.e. what, where, by who, with what, how, when etc.
Jan van der Vegte uMngeni Municipality	1. In principle SP might need to look at the PDA draft legislation but PSC can't ask Service Providers to keep up with new legislation as we go along. Detailing a planning procedure would be more useful – where do you suggest we bring in analysis that needs to be done? There should be additional provision for analysis after the comment period. State where environmental consideration should be brought into process. Currently its left up to the Applicant, usually to the advantage of the application.	Noted will be dealt with in S1.2
	2. SP has made a lot of progress in the spatial component. Separate the indicators from the zones you'd like to see. Its not legible.	Not possible to separate spatial products as they are wall to wall ECZs. Potentially complexity in reading composite map is due to scale which resolves itself as one zooms in to the local and project level. Complexity is necessary to reflect both opportunities and constraints to development. The layers are contained within the SQ report if further detail is required.
	3. Table 3: 3PLANNING FRAMEWORK "The 'business as usual model' around which questions are being raised in this SEA process is being rolled out into the future without adequate account being taken of the real limitations to future development posed by depleted natural capital and the continued outworking of economic externalities on the quality of life and the natural environment."	SP will clarify terminology in definitions.

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	Jargon – no idea what this means. Assess future development & link with other processes. Say which direction development should be going.	
	4. Slope is a local or project specific issue. Meaningless at 20m contour. Rather sate that it is an important issue at local level.	Noted and is already dealt with in S5.2.
Kim van Heerden DAEARD	Question around environmental control zones. How did you determine these to the exclusion of others? The ToR require that the SP prioritise issues. Focus should not be on natural capital. Need development & social aspect to be incorporated.	The BSP ECZs are fully inclusive. The focus is not on natural capital, but on sustainability and hence covers both development and social aspects. S1.3.3 will be reviewed and made more explicit in terms of making the SEA relevant to social and development issues.
Jan van der Vegte uMngeni Municipality	Water provision & housing	Water provision is being dealt with ITO the ECZs and the guidelines and housing is being dealt with ITO the SDF alignment.
Mandisa Khomo uMgungundlovu District	1. We need a document which speaks to the client's needs and is implementable.	Note that this is a technical document and must remain relevant and hence does meet the requirements of the TORs and has been compiles ITO national guidelines. ITO of its being implementable, it is acknowledged that the SEA is pitched at the strategic level, and that the SEMP will be at the level required to be implemented. The SEMP will be populated by strategic partners.
	2. SDF only NB feature is the N3 Corridor with the SP did not consider.	Clarity will be included into S6 of the SEA in the introductory section.
	3. Vision: "…ensuring that its natural capital is fully restored and	The vision as its stands fits within the NSSD and the

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	managed…"replace 'fully restored' with 'manage'. Comes across wrong. Let's make it look achievable.	PGDS visions and restoration of natural capital is essential to deal with societal and economic vulnerabilities while at the same time being an opportunity for pursuing job creation in the context of the green economy. This is a long term vision within which urgent short term action is required.
	4. Include jobs in the green economy.	Noted will be addressed.
Ian Felton DAEARD	Marita Thornhill developed the environmental aspects in the PGDS. Has she been contacted to provide comment on the draft SEA?	Marita's comments were requested as per contractual obligations and are awaited.
Rodney Bartholomew Msunduzi Municipality Environment	Don't water down EGS to sell the report. Bring people up to the standard.	Fully supported.
Elaine Donaldson Mshwathi Municipality	In the maps, the legends stipulate Built up for some agricultural areas, i.e. Rainbow Chickens is shown as built-up. This is misleading.	Recognise that the land cover data does not distinguish between built up and intensive agriculture. However, the guidelines are still relevant.
Jan van der Vegte uMngeni Municipality	Break up maps and give one composite map in the SEMP.	See above.
Rodney Bartholomew Msunduzi Municipality Environment	There is explicit legislation and increasing pressure from IAPs who are throwing legislation at official to make informed decisions. There must be a layer in the SEA that officials have to use to make decisions. Has to be in SEA, not just actions in SEMP.	Will be addressed in Section 1.2: How To Use This Document.

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Ian Felton DAEARD	Find out where EKZNW is at in BSP approval status. The BSP has had no public consultation.	Awaiting guidance from EKZN. Irrespective of the status of the BSP we would have used the same layers and hence the same outcomes would have been generated. ITO public consultation, according to EKZN Wildlife, BSP does not require public consultation. If BSP is included in the SEA, it will go through a public process.
Jan van der Vegte uMngeni Municipality	LA SDFs need to be informed from the District SDF where you should not develop and then they can add detail. If you do have to consider an application for development, how do you bring these tools into that process? There needs to be a hierarchy downwards from Provincial to District & LA level. The SEA must include a Policy stipulating where and how development can proceed so that authorities, when faced with a proposal know how to deal with it.	See Section 1.2
Ian Felton DAEARD	Get 1km buffer around dams guidelines from Manisha at DWA.	Comments from DWA have been sought and are awaited. DWA has commissioned Resource Management Plans for dams in the district and their SPs have been informed of the SEA process and have been encouraged to access a copy of the SQ report.
Jan van der Vegte uMngeni Municipality	Condense Table 3 and simplify it so that it is more user-friendly and put the detailed table into an Appendix.	Noted see above.
Ian Felton	The second draft SEA Sustainability Framework Report produced by Isikhungusethu Environmental Services (Pty) Ltd dated 20 July 2012 and	

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DAEARD 15 August 2012	submitted in respect to the terms of reference of the abovementioned project refers. Please note that the comments provided below are in addition to and in support of the issues and comments raised in the Project Steering Committee meeting held on the 3rd August 2012. Furthermore these comments and recommendations should be read together with the issues and comments captured in the Minutes of the 4th PSC meeting held on the 6th June 2012 and this Department's written comments and recommendation submitted on the 7th June 2012.	
	1. As suggested before, it is important to frame sustainability for this project, within the existing National Framework for Sustainable Development and the associated National Strategy and Action Plan [NSSD1] approved by Cabinet on the 23rd November 2011. This plan establishes a Vision that can be used as the basis and wording for the District's Vision. It also five strategic priorities, associated strategic objectives, interventions and headline indicators. While it is acknowledged that not all of these are relevant for the uMgungundlovu District, many of them can and should be downscaled and adapted to the strategic priorities, objectives, interventions and indicators for the District.	Noted see above.
	2. The new KZN Provincial Growth and Development Plan [PGDP] has integrated environmental sustainability objectives and indicators within its monitoring and evaluation framework and these should, where practical and possible, be used within the sustainability framework.	Noted see above.
	3. In terms of the analysis of information towards the identification of sustainability objectives and a vision for a desired state of the environment, provided in Table 3 of the draft report, the Department has the following concerns and comments:	

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	a. The table could be simplified and restructured to reduce the complexity and make the information more easily understood by the general reader. For example, issues identified could be reflected as a consolidation rather than two separate columns.	Noted see above.
	b. The terminology and wording within the interventions need to be simplified and condensed to reflect easily understood proposed actions to achieve the desired objectives.	Technical terminology is included in the definitions table.
	c. It is the Department's understanding that Objectives should be a short clear statement of what is intended to be achieved and that should specify the desired direction of change in trends. In brief it's something that we are aiming at and should be linked to the strategic issue. Interventions are actions that would be required, or are necessary to move towards achieving the strategic objective.	Objectives will be reviewed and rearticulated where necessary.
	d. Some of the sustainability objectives read as interventions rather than objectives. Examples include those under 1.2 Aquatic Environments and 1.3 Air Quality. Other objectives tend to be broad statements that are not clear and concise or at an appropriate scale for the District. These objectives need to provide a statement of intent and must be aligned with the objectives of the NSSD1 and the PGDP.	
	e. The environmental issues identified by stakeholders in the District Environmental Forum consultation process such as environmental education, human health and vulnerability, environmental governance and land use planning etc have not been adequately captured.	Have been dealt with above.
	f. The Governance aspect tends to focus only on "Government's" role. Governance is the process of decision-making and the process by which decisions are implemented. Governance should focus not only on Government but on all the formal and informal actors involved in decision-making and implementing the decisions made. It should also consider the formal and informal institutions or structures that have been, or should be, set in place to arrive at and implement the decisions, and to	This will be dealt with in the SEMP.

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	monitor and evaluate the outcomes.	
	g. There needs to be a careful and tactful rewording of the section related to land reform, particularly given the political and social sensitivity of land and land reform within the country. Land reform as a policy and principle per se is not the cause of the loss of natural capital or agricultural resources, however the slow pace of implementation and governance aspects related to implementation are resulting in negative social, economic and environmental impacts.	Noted see above. RD S2 land use.
	h. The sections on agricultural resources and particularly solid waste are incomplete in respect to the identification and interpretation of issues, interventions and objectives.	Noted will be dealt with.
	4. In respect to Section 3: The Sustainability Framework and Table 4 The Sustainability Framework for the uMgungundlovu District Municipality SEA and SEMP, the Department has the following comments and recommendations:	
	a. It is strongly recommended that the Vision be placed into context by the NSSD1 Vision and that this Vision preferably be downscaled and rephrased to be applicable to the uMgungundlovu District. The participants in the District Environmental Forum also identified key elements that they would see as forming the basis of a desired state of the environment. It would be beneficial and important to capture some of these key words within the Vision. For example, emphasis was placed on the need for environmental governance and that we need to respect the environment. These key phrases can be used in the Vision and will build buy in from civil society in the process as they will see their contribution captured.	The SP is satisfied that the vision as it stands fits within the context of the NSSD and the PDGS and the appropriate revision will be made to substantiate this.
	b. It is recommended that Table 4 be restructured to group environmental issues either in line with the four pillars of sustainable development (natural, social, economic, governance) or with the five strategic priorities of the NSSD1 (Enhancing systems for integrated planning and	Noted see above.

CONTRIBUTOR	COMMENT	RESPONSE
	implementation; Sustaining our ecosystems and using natural resources efficiently; Towards a green economy; Building sustainable communities; Responding effectively to climate change).	
	c. As indicated before the sustainability objectives should be aligned where possible and appropriately with the objectives of the NSSD1 and the PGDP. Similarly to the comments in respect of Table 3, the sustainability objectives tend to reflect interventions and not clear and concise objectives.	Noted see above.
	d. It is recommended that an additional column be used to include the identified interventions (e.g. Revise, update and implement the KZN water reconciliation strategy; or, Develop an air quality management plan for the District). These can then be easily used as the basis for the action items to be developed in the SEMP.	These are actions to be identified by the strategic partners in the SEMP under guidance of the SP.
	e. The column for Sustainability Objectives should reflect the clear statements of intent related to each environmental issue. The intention is to be able to use these Objectives or Criteria for the evaluation of all future projects, plans and programmes.	Noted.
	f. To ensure that the sustainability framework is effective, efficient and useful as a monitoring and evaluation tool, measuring trends towards achieving the desired state, it is important to rather identify key indicators that can demonstrate the trend, rather than a high number of complex and costly indicators that will require significant capacity to monitor. It is recommended that the indicators be refined and reduced to only those key indictors that can ensure efficiency in monitoring performance.	As many indicators as possible have been included to ensure comprehensive product which strategic partners can then use to select the most appropriate for the SEMP.
	g. Indicators are simply what you are going to measure and should not reflect the desired level of target that we wish to achieve. E.g. Potable water loss %. The desired level or state should be provided for within the targets or thresholds. E.g. Less than 15% potable water loss per annum.	Noted and framework to be revised accordingly.

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	h. The Sustainability Framework also has not included Issues, Objectives, Targets and Indicators for key environmental issues related to Governance, Waste management and Cultural heritage.	Noted above.
	i. Detailed comments on Table 4 are provided in the attached MSWord document in track changes in order to assist in providing specific comments in relation to the Issues, Objectives, Targets and Indicators developed.	Acknowledged with thanks.
	5. In respect to Section 5: SEA Guidelines, the Department has the following comments and recommendations:	
	a. While it is acknowledged that additional Environmental Control Zones [ECZ] and guidelines have been included for Slope, Cultural Heritage and existing development, in addition to those of Biodiversity, the Department considers that the lack of guidelines and ECZ's for key environmental aspects, specifically Water Quality, Air Quality and Agricultural Land are a fundamental limitation.	Noted and addressed above.
	b. Water Quality in particular is a key environmental issue that directly effects one of the issue and need for controls in this regard have been raised in the PSC meetings by both the authorities and civil society in the District Environmental Forum consultation. The Department is of the view that ECZ's for water quality can be established spatially in line with the recommendations made by the Department of Water Affairs in the PSC held on the 6th June 2012 and that management guidelines can be developed specifically for these sensitive zones.	Points raised by DWA were relevant to reactive environmental management processes. As stated above, water quality has been adequately addressed through the BSP ECZs. If however, relevant comments are provided by DWA as requested we will respond accordingly.
	c. Spatially represented ECZ's for Air Quality and Agricultural Land are admittedly harder to establish, due to a scarcity of suitable spatial information. Guidelines however can be developed for these environmental issues to assist land use planners in decision making in either spatial planning and/or development applications.	Air quality and agric guidelines will be requested from the relevant specialist and included if available within budget limitations. MZ and RD. The SP feels that agric guidelines are sufficiently comprehensive in the BSP guidelines.

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	d. The Biodiversity ECZ provides guidelines for development appropriateness, in categories of Recommended, Restricted and Unsuitable. The definitions for these categories however need to be reworded. The level of detail of decision making and information required in order to make those decisions only relates to biodiversity and not to environmental management. The criteria for considering levels of appropriateness of development in specific ECZ's is only related to the direct impact of those developments on the transformation of land and associated expected biodiversity impacts. These criteria have not considered all of the other environmental management factors that are assessed in determining environmental approval. It must be clearly stated that the guidelines in the Biodiversity ECZ only relate to biodiversity impacts, and the definitions must replace the words "environmental management" with "biodiversity".	Dealt with above.
	e. Within the Unsuitable category, there is reference to "if an exception is required". It will be necessary to define this exception, in line with the stipulation of the Constitution related to significant socio-economic justification.	Seek clarification from EKZN Wildlife.
	f. In order for the Biodiversity ECZ's to be integrated and used in SDF's the land use types (e.g. Urban development etc) should be aligned with the general land uses designations used within SDF plans (e.g. Residential, Industry, etc.) so as to ensure common understanding.	
	g. In order to simplify and reduce complexity in the mapping and guidelines it is recommended that Control Zones be collapsed where appropriate and land uses with the same impacts and controls be collapsed (e.g. Plantations, Irrigated crops and irrigated orchards). The map colouring and terminology should be aligned with the guideline terminology and colouring.	Will investigate feasibility.

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	h. The intent of guidelines for addressing existing developments within ECZ's, whilst laudable, unfortunately is considered to be impractical and unrealistic, especially in respect of the suggestion of surveys to identify every development in the district and then to undertake investigations on each development to determine their legality. The Department does accept that good Governance and the rule of law must be central to ensuring sustainable development. Guidelines however need to be within the capacity and resources of the authorities to implement.	Dealt with see above.
	i. Section 4.4 Legal Application Procedures provides the generic application processes for both the environmental assessment process and development planning application process, however does not provide guidance as to how and where the information, guidelines and sustainability framework should be used in those decision making processes.	To be addressed in S1.2
	j. Guidelines should also be provided as to how the information, guidelines and sustainability framework of this SEA can be used in all decision making for projects, plans and programmes, not only those related the EIA and PDA applications. Sustainability Appraisal can be used as a tool to consider projects, plans and programmes against the criteria of the sustainability framework for informed decision making.	
	6. In respect to Section 6: Alignment of the district SDF with the SEA, the Department has the following comments and recommendations:	
	a. While the consideration of the existing nodes against the environmental controls provides guidance in respect to potential opportunities and constraints, there is limited assessment of the broader strategic drivers and planning that have informed the SDF. For example the location, type and consideration of nodes and corridors. Recommendations should be provided to assist in informing the strategic direction of the SDF in addition to those recommendations made	We believe this is outside the scope of this project an should be dealt with in the SDF.

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	regarding existing nodal development issues.	
	b. Consideration of the likely environmental impacts of the existing SDF on the environment and achieving the established sustainability criteria should be provided.	Outside of the scope of the study. However we have provided guidelines in S5.4 which addresses existing developments within ECZs.
	Should you have any queries with regard to the content of this letter, please do not hesitate to contact the Department.	
Manisha Maharaj DWA **30 August 2012**	1. Under notes for the vision: The uMgungundlovu Municipality must be included as part of the authorities responsible.	The UMDM is specifically referred to in the vision with additional explanation that SEA and SEMP implementation will be led by them in collaboration with relevant Strategic Partners
	2. Under governance: Compliance and enforcement from the District level needs to be strengthened with regarding to pollution of the water resources within the District.	Noted and amended in Table 6.
	3. There needs to be stricter compliance to the Water Services Act	Noted and amended in Table 6.
	4. Under solid waste: Need for solid waste services throughout the District (only parts of the District have access to these services).	This aspect has been addressed in both the targets and indicators in Table 6.
	5. Section 3.4 – The Department of Water Affairs river health program must be used for indicators of river health	Numerous river health considerations have been included as both targets and indicators.
	6. Table 4 indicators: Not necessarily the solution. Need for river monitoring to be used as indicators of improvement. Need for maintenance and improved reaction time to pump and manhole failures.	Noted and reaction time & need for maintenance of water & sewer reticulation pipelines has now been included as an indicator under water quality.
	7. Table 5: Biodiversity land management guidelines of the uMgungundlovu Biodiversity Sector Plan: Don't consider livestock farming near critical water resources as suitable. There needs to be buffer zones around the water resources for particular land uses in	Noted and the guidelines have been amended accordingly.

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	order to promote development while protecting the water resources.	
	8. The water resources within the District Municipality were mostly considered from a biodiversity aspect factors such as , strategic importance, water uses, water quality, water quantity and river health need to be factored in.	It is true that the derivation of the ECZs and guidelines are based on the Biodiversity Sector Plan, but the strategic importance of water has been emphasised throughout the Status Quo process and this has been carried through into the SEA process. The project team believe that the combination of terrestrial and aquatic ECZs provide adequate substance for the protection of this strategically important resource.
	9. The Districts groundwater resources, wetlands and floodlines needs to be investigated.	Ground water and wetlands have been assessed in the Status Quo and have been considered in the SEA report, especially through the Sustainability Framework and ECZs, e.g. restoration of catchments to ensure optimum infiltration and recharge of ground water resources. Floodline information is determined on a project by project basis and is therefore not available for insertion into the SEA spatial products.
	10. The status quo needs to be expanded to indicate the current status of water resources within the District. Areas requiring environmental rehabilitation needs to be identified (e.g. degraded wetlands, erosion gullies, riparian zones, etc)	The project team believe that this aspect has been comprehensively covered in the Status Quo Report and sufficiently carried through to the SEA. Degraded natural areas have been identified as a land cover type in the spatial products, but again the scale is too course and these aspects will need to be picked up at the Local Municipal level.
Comments and Responses emanating from the two Open House public meetings held on 30 and 31 January 2013 at the Fern Hill Hotel and UMDM Council Chambers respectively, as well as from written submissions made during the public comment period from 6 December 2012 to 8 February 2013, as well as from the open invitation to		

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provide comment based on the release of the draft report for such on 6 December 2012 and the Witness feature published on 15 January 2013.		
Judy Bell: Winterskloof Conservancy	1. Well done! Thanks for presentation to help us participate.	Appreciation acknowledged.
	2. Implementation is essential! Needs to be a legally binding document and process.	As far as the process is concerned it is no yet a legal requirement for Municipalities to undertake SEA and SEMP projects. However, once the UMDM pass a Council Resolution to accept the SEA, it will be a legally binding policy according to administrative law. In order to have it legally binding under NEMA, it needs to be up graded to an EMF.
	3. What makes Local Municipalities and Province use the SEA in their processes to align strategies and plans?	The SEA Sustainability Framework (SF) begins with a section focussed on Governance and Implementation and the development of the SEMP will use the SF as a point of departure. As such, specific actions will be derived that speak to the use of the SEA in the alignment of strategies and plans at both local and provincial level.
	4. Rules for development should apply to all structures and be aligned with the UMDM, the Local Municipalities, Traditional Leadership and the Ingonyama Trust. Need to do presentation to these structures.	This need is acknowledged and efforts will be made to draw the Ingonyama Trust and Traditional Leadership into the SEMP process.
	5. Need to legally enforce this process – take to EMF status.	See response to comment 2.
	6. Need to find a way to get political commitment in view of elections looming. This needs to survive politics.	This concern will be communicated to the Client and the PSC and they will be encouraged to present the SEA report to the relevant political role players.
Umngeni Residents and Ratepayers	1. The tremendous expansion that in property development has	Dear Claude

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Association – CR Edwards	contributed to the major overloading of Howick's Sewerage plant situated next to the Golf Course and within 10 metres up gradient of the 879 Shiyabazali informal squatters all using pit latrines. All this pollution gravitates into the Umgeni River. This plant remains renowned for noxious smelling odours and golfers and pedestrians being attacked by black flying insects.	Dee Walker sent me a copy of the emails you copied to her in relation to the SEA article in yesterday's Witness. We would appreciate your review and comment on the actual draft SEA report and if you like we can include you on our database as a registered stakeholder in the process. If you would like to access a copy of the draft report please let me know. Please note that the comment period is until the end of this month. Just a quick response to the issues you raise in the email that you copied to Dee – these are all very specific, although highly relevant issues that pertain to the uMngeni Local Municipality. The SEA is being done at a District level and therefore at a courser scale which will not necessarily pick up these issues in the SEA itself. However, it will be possible to include issues like this in the SEMP (Strategic Environmental Management Plan) which is the final phase of the SEA and which we will initiate in February. Yours sincerely Kevan Zunckel
	2. Providing of housing to the unfortunate Shiyabazali informal squatters, who are exposed to unsafe and dangerous circumstances due to the building of their shacks under or within safety distances of the high power overhead electrical transmission lines? These lower income communities with limited employment opportunities and a possible ignorant disregard for the power line dangers, if allowed to continue by the Municipality to squat shall in terms of our constitution make the uMngeni Municipality responsible and liable for injury and damage that may result from the above situation. Council must also ensure that a halt is made to the erection of illegal shacks, as this is going to be like a bomb waiting to explode, and adding to the continued problem of the environment. Likewise we foresee a need for the accelerated delivery of housing, with services provided on pre-paid metres for all the squatters within our Municipal area. Each new dwelling should also be provided with a rainwater tank to assist with optimisation of vegetable gardens and they should be assisted with the planting of fruit trees such as naartjies, oranges, etc. We should also budget for an uMngeni Municipality extension officer who could be tasked with assisting our reallocated farmers of government sponsored farms with economical and sustainable farming methods sustainable agriculture is a key platform to growth.	
	3. Funds to be made available to ensure full compliance with Permit Number B33/2/1920/94/P29 issued to Borough of Howick, for the Curry's Post Quarry, class 2 waste disposal site. The rapid depletion of the dump site accelerated, due to the closure of Hilton's refuge site, together with the more than doubling up of local domestic and	

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	builders waste discarded, requires urgent attention to the establishment of a suitable replacement site. The Curry's Post has less than three (3) years life span remaining the storm water drainage from the Dump site has been found to end up in the wetland alongside Sunfield Home.	SEA Project Manager
	4. The Caravaners, the Motor Homers and the campers continuously remark on the closure and upgrading of our renowned Howick falls Caravan / campsite park facilities, such as power points, and ablutions blocks. In terms of legislation this remains a NATIONAL HERITAGE OUTSPAN Site, here the local authority are the administrators/trustee thereof.	
	5. We can create work for 200 people if our uMngeni Municipality establishes the same Gas to Electricity plant as has been done at Marian hill Landfill Conservancy as detailed in the document attached to my first E-Mail today. The major benefits are the solution to our Curry's Post Land fill site, and the same solution applied to the Mpophomeni Sewerage plant and waste dump site being the establishment of a duplication of "The Marian hill Landfill Conservancy ,which accepts 500 tons of waste a day , which is used to generate 850 kW electricity which can supply 2000 houses and create 200 jobs and can save R50 million over 10 years of operation at the Midmar Dam Sea of possibilities as detailed in The Witness on page 7 today. Why do we not install a Water Turbine on the controlled Midmar sluice, as was done in the Drakensberg highlands which produces electricity and helps Eskom?	
Catherine Fennell: committee member of the Friends of Beacon Hill (Howick) - an affiliate of the Midlands Conservancies Forum – written comment dated January 2013 (email received 30 January 2013).	1. With an active interest in the challenges facing both natural and built environments and as a committee member of the Friends of Beacon Hill (Howick) - an affiliate of the Midlands Conservancies Forum - I have valued the opportunity to review the uMgungundlovu District Municipality Strategic Environmental Assessment Report. Please find attached my comments as well as the original report, highlighting a few minor editorial corrections. I look forward to following the development of the SEA in the District and the compilation of the Management Plan.	Thanks very much for the effort you put into editing as well as commenting on the draft report. Much appreciated and I look forward to reviewing your comments.

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	2. Overall comment report.	In general we found that your report on the SEA provided a general review which would have been extremely useful if the points raised could have been considered at inception. Unfortunately the project has progressed substantially since then with the Status Quo phase completed and the SEA phase almost complete. However, there were some aspects that we are able to provide specific response to and these are listed below:
	3. While the current SEA may have modeled its methodology on the PSR framework, structuring the 'desired state' around key responses (rather than issues) may facilitate knowledge transfer and thus increase its operational performance. The effectiveness of any tool can only be evaluated by considering whether something works as well as it is intended and, at the same time, meets the purpose for which is was designed. Effectiveness applies as much to 'environmental effectiveness' as it does to 'democratic effectiveness' (better decisions and institutional implementation) (Stoeglehner et al. 2009).	Whilst this could be an approach used, we feel that 'environmental issues' like reduced water quality are better understood by people reading the reports and those needing to implement. The DPSIR approach was also simplified and adapted to meet the needs and objectives of the SEA. This was to assist municipal officials, councillors etc. in understanding the environmental issues being faced and to integrate the outcomes of the process into municipal planning processes.
	4. Apart from existing pressures, the SEA should consider the likelihood of other pressures. These could include: An increase in competition for goods and services owing to geographic variation i.e. what regional and local strategies will address resource management issues? An increase in urbanization. According to global predictions cities will triple in size by 2030 (60% has yet to be built).	The SEA process is limited in terms of its scope of works and associated budget. Whilst scenario planning could be something that can be considered, more emphasis has been placed on establishing a sound sustainability framework, against which future scenarios, plans, programmes, policies or strategies could be evaluated in the future. It is the intent, for future municipal planning, to use the sustainability framework for consideration of other potential

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		pressures.
	5. Landscapes vary in their vertical structural complexity and horizontal spatial grain with complex landscapes having high vertical complexity and fine spatial grain. The resultant matrix is not only texturally discontinuous but significant in generating biodiversity pattern (Fischer et al. 2008). Thus land set aside for conservation purposes cannot be viewed in isolation; the regional landscape must be viewed in its entirety. Both simple and complex landscapes are important for species conservation.	The structural and spatial complexities of landscapes have been integrated into the spatial design of the environmental control zones. The principles of landscape ecology including biodiversity patterns, landscape connectivity and the need for long term persistence are key elements in the bioregional planning process undertaken by EKZNW.
	6. Although cultural ecosystem services are recognized they are not adequately incorporated in the ecosystem services framework (Daniel et al. 2012). The authors propose a tiered approach to recognizing and capturing the value of ecosystem services and argue that they have the potential to motivate and sustain public support for ecosystem protection since culture is an important driver of ecosystem change. The concept of trade-offs and synergies across multiple value systems are also addressed.	Valid points are well made and supported in terms of the need to better understand and integrate cultural landscape planning into both environmental and development planning. A landscape character assessment has been undertaken for the uKhahlamba-Drakensberg WHS buffer and recommendations in the SEA report should be that this type of study also be extended in the future to cover areas in the district where there is potential conflict in the alteration of the landscape and sense of place characteristics (e.g. Midlands rural agricultural landscape areas).
	7. Siemens has published several reports evaluating the environmental performance of cities around the globe with the following category findings: CO2, energy, land use, buildings, transport, water, waste, air, environmental governance.	These performance evaluation criteria are being considered by Msunduzi. These mainly aim at built landscapes and established cities, and are not easily applicable to a largely rural district municipality.
Duzi uMngeni Conservation Trust – written comment dated 8 January	Thank you for the opportunity to comment on the draft SEA. The document is comprehensive and the information well presented. We have reviewed the document and offer herewith our comments on	

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2013.	issues of concern to DUCT. Our interest lies in the uMngeni River catchment and thus in reviewing your document, our concerns cover all aspects of this river and its catchments. However, many of these issues / concerns are mirrored on other catchments that fall under the Umgungundlovu District Municipalities jurisdiction, and could thus be used for these areas as well. Our comments below comprise: (i) Comment on the draft SEA document (ii) Extracts from our report compiled on the walk down the uMngeni River in May 2012. (iii) Observations from perusal of development application documents.	
	Comment on the draft SEA document	
	1. Population statistics showing the percentage of the KZN population resident in this District Municipality would help put things into perspective	This aspect was captured in the Status Quo Report has been drawn across into Section 1.3.1.
	2. Government Co-operation is often a stumbling block as per section 48 of the NEMA which in effect absolves so-called organs of state from criminal liability. Until this issue is resolved, many of the contamination problems with regard to WWTW and storm water contaminations will go unresolved. Perhaps recommendations to	This has been covered as one of the Sustainability Strategies in the Sustainability Framework related to water quality.

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	"pursue criminal proceedings against specific individuals" in their private capacities should be made.	
	3. We feel that there is the need to address the gap between the draft SEA & the implementation of the management plan specifically with regard to areas listed in the in draft document as ecologically sensitive – what will be done to stop their damage / destruction in the interim?	This comment does not require amendment to the SEA report; however the Project Steering Committee includes all relevant organs of state that are now aware of and are in possession of the draft SEA and its associated maps and are in a position to make use of these products at their discretion.
	4. Of concern is that current flood line calculations used in planning do not take into account Climate Change, and this could be discussed in the SEA.	It is agreed that this is the case and it is recognised that in parallel to the SEA the UMDM are developing a Climate Change Response Strategy which will take this issue into account. However, flooding and the risk thereof is covered in numerous Sections in the report.
	5. Page vi - Although the SEA has been aligned with Local Agenda 21, NSSD1, New Growth Path Framework, Provincial Growth & Development Strategy we feel that reference could also be made to recommendations in the SA World Commission on Dams Report. These stress the importance of a. Public Participation, b. Research of all alternative options prior to the decision to build a dam, c. Siltation issues encompassing catchment management d. Catchment Management Forums role in achieving the SEA objectives	Thank you for this. Reference has been included in this Section.
	6. Page vii - At the current rate of environmental degradation, our concerns are the changes that will occur between now and the implementation of the SEMP with regard to the identified priority areas that require action in the short-term, and the formulation of these actions into detailed action plans that will form the core of the SEMP. How will identified priority areas be given protection in the interim?	Please see response to comment No. 3 above.

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	7. Page ix - The SEA … identifying the key threats …identify a set of objectives ….achieve a vision based on sustainability. Some key threats: a. Lack of understanding of environmental issues by decision makers and managers b. Lack of accountability (i.e. problematic sewer infrastructure) c. Lack of compliance monitoring and enforcement d. "Seniority" between Government Departments with regard to decision making	Agreed and covered in the Sustainability Framework section on Enhancing Systems for Integrated Planning and Implementation.
	8. Page 10: Attributes: the word elements is spelled laments	Thank you – correction made.
	9. It would be helpful for orientation if the major rivers of the area (ie the uMngeni, uMsunduzi, Lions and Karkloof Rivers as well as Midmar and Albert Falls dams were indicated on all maps.	Thanks you. The maps will be revised accordingly.
	10. The ECZs and guidelines are intended as a tool to inform future spatial planning and at the same time screen development applications such that remaining natural capital can be safeguarded and that which has been transformed can be re-instated to a condition that restores its ability to deliver vital ecosystem goods and services. a. Of concern is the word guidelines – this gives the impression that they do not need always to be considered or adhered to, and as a result the areas will slowly diminish b. A strategy needs to be devised wherein these ECZ's are honoured in order to screen development	The use of the term 'guidelines' does not take away from the fact that once the SEA is adopted by Council, it will be a legally binding document, and inherent in the process is the alignment of all other local government planning processes and mechanisms to the SEA.
	11. Page 41 - Impact column, 4th point: Eutrophication - include the damage to the ecosystem such as less oxygen, less sunlight etc. by way of explanation	Agreed and amended.
	12. Page 43 - Impacts column, 3rd point: Littering & illegal dumping – add in some examples of environmental impacts	Agreed and amended.
	13. Page 53: Guide location for investment by investors: It should be kept in mind that often a developer will purchase a piece of land with the sole intention of developing it, and will then use any justification to build on it. Perhaps all estate agents should be	Agreed and amended in Sustainability Framework related to land degradation.

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	supplied with details of "no go areas" once these have been finalised, so that potential developers will be informed from the outset. Perhaps details such as zoning and irreplaceable areas could be on an easily accessible, well publicised website in order for anyone to peruse prior to planning that may be refused	
	14. Page 51 - Recommendations could be included regarding aspects such as a. Lighting – lack of spotlights, down lighting, etc., b. Building design and materials that blend in with the surrounding environment, c. Building colour that blends in.	This aspect is specifically addressing slope and therefore the guidelines are limited. Otherwise the recommendations provided would need to be applied on a project by project and site specific basis.
	15. Gentle slopes: a. Is 1:50yr flood line sufficient due to climate change? b. Many of the gentle slopes occur in valley bottoms and perhaps the inclusion of a cautious approach is needed with regard to narrow valleys where development between the edge of the steep slope and the river, excluding the flood lines, will encompass almost the entire valley. Such valleys could rather be planned as green belts or buffer lengths	Agreed and amended in Section 4.3.2.2.
	16. Spatial planning pg. 53: Environment and open space (passive and active), this is never applied in low cost housing developments and needs inclusion in the SEA.	This aspect has been covered in Section 3.5.
	17. Page 54 - It was further noted in the SDF that major intersections on the N3 corridor between Camperdown and Howick-Mooi River would become key economic drivers (new nodes) in the future in the hierarchy of nodes and corridors which characterises the sub-region. These intersections were seen as important in terms of their ability to generate growth and employment owing to ease of accessibility. It was further argued that future growth in these nodes would derive from non-agricultural. Sensitive "islands" in these nodes need to be identified and excluded from the footprint – possibly as buffers or green belts. A prime example of this is the proposed Hilton Mondi development which, although situated in the N3 corridor development node, comprises an area of many	The ECZs should provide adequate allowance for the islands referred to here as they need to be applied within all identified development nodes.

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	wetlands which would ideally be planned as a natural "island" in the N3 corridor node. Areas surrounding water courses would be other candidates for this approach.	
	18. Page 55 Spatial & environmental planning concepts - The limitation to these planning concepts is that they appear not to have always been applied by municipalities in responding to development pressures. This has resulted in the contradictions and maladies which characterize land use in the district Intervention, therefore, involves greater recognition and buy-in from capacitated municipal planning staff and councils to ensure that these planning principles are upheld in future in the interests of sustainability and public good which at pressure appear to be under threat. a. Suggestions as to how to rectify this situation could be included in the SEA. How will conflict between a development application on medium priority agricultural area be decided – will these & high potential areas be off limits? b. Otherwise a set of criteria are needed to guide the decision making process. c. Cumulative effects of developments are not currently tracked which adds to the problem.	The relevance of cumulative impacts is recognised and an SEA is designed to try and pre-empt these. Otherwise the guidelines provided in Section 4.2.2 should be sufficient to cover these concerns, if they are applied rigorously.
	19. Page 58 - The tables make it easy to understand what has and has not been implemented into the SDF according to NDSSD. However, although some of the Key Environmental Issues listed have been integrated into the uMgungundlovu SDF, not all are actually implemented on the ground. Possibly, the inclusion of a short analysis of the reasons for this lack of implementation would enable an understanding of "where to now" which could then be addressed in the future management plan. In addition, some recommendations for implementation could be made for the items that have not yet been implemented into the SDF.	While this Section is a stand-alone, it must be read in conjunction with Sections 2 and 3 which show an understanding for the problems related to implementation, and provide sustainability strategies to address them respectively. Otherwise it must be recognised that the SEA is at a District level and still needs to be translated by the Local Municipalities to their scale.
	20. In addition, some recommendations for implementation could be made for the items that have not yet been implemented into the SDF.	All of the detailed recommendations made under this sub-heading are recognised and are potentially relevant in the SEMP process. You are encouraged to

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		engage with the SEMP process and to use these as a check to measure the extent which the SEMP includes them.
	21. Extracts from the uMngeni River Walk	The recommendations made here are all relevant but too specific for the SEA. We will take them across to the SEMP process and attempt to have them integrated there. You are encouraged to engage with this process and to check this as well – as stated above.
	22. Observations from perusal of development application documents	Again all of these observations are relevant and serve as a check list for the extent to which the SEA has succeeded in identifying them. We are confident that the SEA includes these issues and that they will be carried across into the SEMP.
Midlands Conservancy Forum (email received from Nikki Brighton on 31 January 2013)	Thank you for a very interesting presentation on the draft SEA. Even for those of us who had already read it, you helped put things in context. I must say, I still find the Sustainability Strategies in all those blue blocks, difficult to understand. I am pleased so many members of the Midlands Conservancies Forum attended and hope that they all comment. General consensus is that the document is great and an incredible place to start to build a sustainable future. However, without enforcement of current environmental legislation and with limited buy in from stakeholders other than computer savvy landowning types, I do wonder how it will	Thank you for the time and effort taken to pull folk together for a presentation and for the comments. I am glad that the presentation helped to provide additional context, but it will not be possible to simplify the complex tables in the Sustainability Framework as these reflect the complexities of the ecological, social and institutional environment we are working in and with. We hope that they will provide a good platform from which to develop the SEMP.

CONTRIBUTOR	COMMENT	RESPONSE
	get off the ground, let alone to the "desired state" we all dream of? We have already made use of the information and statistics in the report to include in presentations and proposals we have done recently and are certain to refer often to the document in future. Please know that MCF will do everything we possibly can with our limited resources to help ensure that natural capital in the area is secure. Good luck with the final part of the process. Best wishes to Patrick Mbanjwa, it was good to meet him.	We are acutely aware of the essential need to get as much buy-in to the SEA and the SEMP and will endeavour to ensure that all relevant stakeholders participate in the process. A draft SEMP will be made available for public review so please lookout for this opportunity and encourage the MCF member to engage with it as well. As the SEA report has been made available for public review you are welcome to use it as you have indicated. However, please ensure that you indicate that it is in draft format and still requires Council approval and adoption. Thanks again for your support of the process as well as the encouragement given.
Dargle Conservancy (email received from Barry Downard on 1 February 2013)	Thank you for your presentation yesterday. You are to be congratulated on producing an excellent document so far. We're interested in seeing the follow-up SEMP. Please find attached comment from the Dargle Conservancy.	Thanks very much for the encouraging comments and for the effort put in to reviewing the draft report. We'll keep you posted on progress made with the SEMP.
	1. The Dargle Conservancy actively works together with a regional forum of likeminded bodies (the Midlands Conservancies Forum, DUCT, Ezemvelo KZN Wildlife, WESSA, KZN Conservation Trust etc.)	Endorsement much appreciated.

CONTRIBUTOR	COMMENT	RESPONSE
	and as such takes an active role in environmental and biodiversity issues in the uMngeni Municipality region. We wish to endorse and support the document as it stands so far.	
	2. In terms of comment, there's not much to add as you are "preaching to the converted", however we would also like to make some additional comment of our own. Our comment is not so much in relation to the content of the report, but rather issues regarding its implementation. a. There is no real involvement in the report of traditional tribal areas (more specifically the Ingonyama Trust). As the land under the Trust's authority is vast, it has a huge bearing on the successful outcome of this SEA and its attendant SEMP. We would like to encourage the UDM to engage strenuously with this issue, and make a concerted effort to reach some agreement with the Trust so that their land eventually becomes part of the SEMP. We believe this to be a critical element in determining the success of the SEMP. b. Our other concern is that there needs to be the political will to "forge" the co-operation of the relevant local municipalities and other governmental bodies, and thereafter, the implementation of the SEMP.	This point is acknowledged and efforts are being made to make sure the Ingonyama Trust are brought into the process as soon as possible. This will be one of the first aspects covered in the SEMP but we also point out that the UMDM Municipal Manager currently chairs and champions District Environmental Forum.
	3. We congratulate the UDM on showing leadership on its course so far, and for the benefit of all the District Municipality's residents, we	Congratulations and encouragement acknowledged.

CONTRIBUTOR	COMMENT	RESPONSE
	hope that this continues.	