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Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA

CHIEF DIRECTORATE: Strategic Communications

Private Bag X833, Pretoria, 0001 Tel: 012 312 8760 Fax: 012 312 8066 Web: www.drdlr.gov.za

**GREATER TAUNG LOCAL MUNICIPALITY (GTLM) ENVIRONMENTAL
MANAGEMENT FRAMEWORK (EMF)
EMF REPORT
[RDLR-0077 (2013/2014) AND CEM 2013/222]**

Client:

Department of Rural Development and Land Reform
Chief Directorate: North West Provincial Shared Service Centre
Private Bag X74, Mafikeng 2745

Contact Person:

Mr Sam Dagane

Sam.Dagane@drdlr.gov.za

Tel: 018 397 7600



rural development
& land reform

Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA

Service Provider:

Centre for Environmental Management (CEM)
North-West University (Potchefstroom Campus)
Private Bag X6001, Potchefstroom 2520

Contact Person:

Mr Theunis Meyer

Theunis.meyer@nwu.ac.za

Tel: 018 299 1467



CEM
Centre for Environmental Management

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THE AUDIT REPORT WAS GENERATED BY:

Author(s): Mr Theunis Meyer, Mr Dirk Cilliers

Reviewer(s): Mr Theunis Meyer

THE REPORT IS APPROVED BY:

.....

**For: Centre for Environmental
Management**
Mr TC Meyer
Project Leader

.....

**For: Department of Rural
Development and Land Reform**
Mr Sam Dagane
Chief Town Planner

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The valuable contributions of the Project Steering Committee, consisting of officials from the DRDLR, DEA, NW READ, GTLM and NW COGTA, as well as representatives of the three tribal authorities are also acknowledged.

To all stakeholders, we thank you for your continued participation and interest in this project.

EXECUTIVE SUMMARY

Background to the project

The Centre for Environmental Management (CEM) was appointed by the Department of Rural Development and Land Reform (DRDLR) to draft an Environmental Management Framework (EMF) for the Greater Taung Local Municipality (GTLM) in the North West Province to address a number of considerations.

The envisaged EMF must inform both project level decision making by the North West provincial government (i.e. EIA authorizations) and the GTLM (i.e. land use authorizations), as well as strategic spatial planning, primarily reflected in the Spatial Development Framework (SDF) of the GTLM.

The GTLM is located in the south-western part of the North West Province in the area of jurisdiction of the Dr Ruth Segomotsi Mompati District Municipality (DRSMDM). The municipal area is predominantly rural and contains 106 widely scattered villages located in three tribal authorities. As a predominantly rural municipality, GTLM faces serious developmental challenges, including poverty and unemployment, inadequate housing, as well as poor roads, electricity, water and sanitation infrastructure.

Land use in the GTLM area is primarily limited to extensive livestock farming, although some high potential agricultural land can also be found. The agricultural sector, both commercial and subsistence, is the major employer and contributor to the municipal economy.

The GTLM area has an interesting and ancient geological heritage that is rich in paleontological artefacts. It is home to the Taung Skull site, where a juvenile hominid (the Taung Child) fossil was discovered, and has been declared a National Heritage site, as well as a UNESCO World Heritage Site.

Due to the number and nature of development applications with environmental impact received by the North West Provincial Department of Rural, Environment and Agricultural Development (NW READ) and a need to align spatial plans affecting the area, a consolidated and inclusive approach needs to be followed in the management of this area. The outputs of the EMF should therefore inform and be considered in the development of the municipal Spatial Development Framework (SDF). Part of the appointment brief was then also to align the EMF development process with the SDF development process for the GTLM, which were running concurrent with the EMF development process.

Policy and legal mandate

The legal framework regulating the GTLM EMF is a complex and multifaceted one, spanning over several sectors and across all three spheres of government.

Section 24 of the Constitution stipulates that all South Africans have a right to an environment that is not harmful to their health or well-being and to have the environment protected for the benefit of present and future generations. The Constitution compels everybody to take reasonable steps to prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources.

In the context of this project, the two most important of these, laying the foundation for the management of the area, are the National Environmental Management Act 107 of 1998 (NEMA) and the Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA). The NEMA provides for the compilation of information and maps, by the Minister of Environmental Affairs or an MEC, that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes, which must be taken into account by every competent authority. The SPLUMA requires the development of municipal Spatial Development Frameworks (SDFs) that must include a strategic assessment of the environmental pressures and opportunities within the municipal area, including the spatial location of environmental sensitivities, high potential agricultural land and coastal access strips, where applicable.

Key regulatory instruments, other than those mentioned above, that were considered in the management of the GTLM include *inter alia* the Mineral and Petroleum Resources Development Act 28 of 2002, National Water Act 36 of 1998, the National Environmental Management Biodiversity Act 10 of 2004, National Environmental Management Waste Act 59 of 2008, National Environmental Management: Air Quality Act 39 of 2004, Local Government Municipal Systems Act 32 of 2000 and the National Heritage Resources Act 25 of 1999. These regulatory instruments provide for both strategic and project level considerations that must be taken into account in the management of the GTLM. It must be noted that alignment and co-operative governance is a crucial imperative across the regulatory regime governing the GTLM, at both a strategic and project level.

Other key regulatory instruments that are specifically to be considered in the management of the Taung Skull World Heritage Site (TSWHS) include *inter alia* South African Heritage Convention Act 49 of 1999, which gives effect to the World Heritage Convention of 1972. Furthermore the relevant UNESCO considerations and considerations relating to WHS's in terms of National Environmental Management Protected Areas Act 57 of 2003 play an important role in the current and future regulation of the TSWHS.

The South African National Development Plan (NDP) aims to eliminate poverty and reduce inequality by 2030. According to the plan, South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society. The South African government adopted a management for outcomes approach as basis for the government performance monitoring and evaluation system. This approach clarifies what government expects to achieve, how they expect to achieve it and how they will know when they have achieved it.

The approach consists of 14 outcomes that collectively address the main strategic priorities of government as a key focus of its work. Each outcome has a number of measurable outputs with targets, is linked to a set of activities that will help achieve the targets and contribute to the outcome and also has delivery agreements which in most cases involve all spheres of government and a range of partners outside government. Combined, these agreements reflect government's delivery and implementation plans for its foremost priorities.

Outcome 10 envisions a South Africa where environmental assets and natural resources are well protected and continually enhanced. It is supported by 5 sub-outcomes. One of the key actions/activities under sub-outcome 1 (Ecosystems are sustained and natural resources are used efficiently) is the integration of ecological infrastructure considerations into spatial/land-use planning and decision-making about new developments, i.e. to ensure that greater alignment of sustainability principles in all levels of integrated and spatial planning, as well as in project formulation.

Purpose of the EMF

EMFs are part of the suite of Integrated Environmental Management (IEM) tools that can be used to support informed decisions regarding the management of environmental impacts that arise out of human activities and developments. They provide a compilation of information and maps, illustrating attributes of the environment for a specific geographical area that becomes useful in a diverse field of environmental applications, including EIA processes, but also other planning processes, such as the development of IDPs, SDFs and other open space planning applications.

Ultimately, an EMF is a decision support tool, which ensures that the competent authority has sufficient information to guide EIA authorization decisions within a specific geographical area. It functions as support mechanism in the Environmental Impact Assessment (EIA) process in the evaluation and review of development applications, as well as in decision making.

Although the legal mandate for EMFs is vested with the EIA authorities and not directly with the local municipality responsible for land use management in municipal areas, the SPLUMA requires SDFs to take cognisance of any environmental management instrument adopted by the relevant environmental management authority.

EMF phasing

The ToR for the project listed seven project phases that reflects four broad phases. The project methodology, however, was guided by the requirements of the EMF regulations and therefore consisted of nine phases, which can be summarised as follows:

- **Phase 1: Inception phase** during which the ToR was deliberated and refined by the Project Management Team (PMT). It culminated in the preparation, submission and approval of an Inception Report by the PMT. It also involved the identification of stakeholders who were expected to participate in the EMF process.
- **Phase 2: Status Quo analysis phase**, which included assessments of the institutional and governance context and frameworks (including the policy, legal and institutional, as well as strategic planning contexts), biophysical environmental aspects (including geology and topography, biodiversity, hydrology, air quality and agricultural potential), social and economic aspects (including socio-economic profile, heritage resources, land use, mining, tourism and services infrastructure). The results of the analysis phase have been documented in a separate *Status Quo* Report.
- **Phases 3 – 6: Synthesis phase** during which the **desired state of the environment (Phase 3)** of the GTLM is described (in terms of an overall development vision and a set of strategic objectives) and **spatially reflected (Phase 5)** based on an analysis of the **sensitivity (Phase 4) of significant environmental features** (as identified from the *status quo* analysis). The spatial desired state is then translated into **draft environmental management zones (Phase 6)**, with accompanying draft management guidelines.
- **Phases 7 – 8: Alignment of the EMF with the SDF**, during which the draft management zones and guidelines are **aligned with the GTLM SDF (Phase 7)**, conflicts identified and addressed. Upon successful alignment, the **management zones with management guidelines are finalised (Phase 8a)**, a **strategic environmental management plan (Phase 8b)** developed, addressing roles and responsibilities for the EMF implementation, and the EMF report finalised (**Phase 8c**).
- **Phase 9: Approval and implementation phase**, which includes the approval of the EMP by all stakeholders, the development of a **GIS training manual**, as well

as all relevant actions required for the implementation, monitoring and maintenance of the EMF.

This report includes the deliverables of **phases 3-8**, and has been preceded by the project inception and *status quo* reports in which the results of phases **1 and 2** are documented.

Desired state of the GTLM environment

The analysis and evaluation of the base line information, issues raised through the public participation process, and authority requirements and policies identify and provide the basis for establishing environmental priorities, related to critical environmental issues and environmental sensitivities, in the EMF development process. The key issues, opportunities and threats were classified under three main headings i.e. legal and institutional framework, natural environment and socio-economic environment. These environmental priorities has been used to develop a vision and strategic objectives for the Desired State of the Environment, as well as management guidelines for the EMF. Strategic objectives were established for all the key natural and socio-economic environmental issues, i.e. hydrology and water resources, land use, agricultural potential, socio-economic development, physical infrastructure and built structures, mining, topography & geology, biodiversity and conservation, heritage resources, air quality, tourism and solar energy potential.

Sensitivity mapping and Environmental Management Zones

An EMF should, amongst others, indicate specific environmental attributes and environmental management priorities in the area that may be sensitive to certain types of activities. This requirement is realized through the mapping of environmental sensitivities, the spatial desired state of the environment and the delineation of environmental management zones.

Environmental sensitivity refers to the manner in which a feature in the environment may or may not be affected by specific types of activities or land uses. Sensitivity maps were developed for specific key environmental attributes in terms of their relative sensitivity to impacts that might negatively affect them. These form the baseline for the environmental constraints dataset. Sensitivity was evaluated for the following possible constraints in the environment: hydrological features, high potential agricultural land, biodiversity, topographical features and socio cultural (heritage) features.

Except for the constraints, opportunities in the area that should be prioritised to stimulate sustainable development were also considered. The opportunities that were considered are development opportunities and renewable energy (solar) development opportunities.

To aid strategic environmental management in the area, environmental management zones were delineated by grouping areas which share the same characteristics together. Areas were grouped based on their current use (e.g. Agriculture, Residential, Natural, etc.) and their sensitivity to different types of activities. Using this approach, the study area was divided into the following seven management zones: urban development, linear development, renewable energy development, general development, heritage, agriculture and biodiversity.

Environmental management guidelines (Phase 6.3)

Environmental management guidelines were developed for each of the management zones. General guidelines were developed, which is meant to guide the overall management of the zones. In addition to the general environmental management guidelines, specific environmental management guidelines were developed for specific activities in each zone. Where mentioned, specified NEMA listed activities may be considered to be excluded from the requirement to obtain an environmental authorisation from the competent authority within a specific management zone. These exclusions will be subject to the specific environmental management guidelines pertaining to such specific activities in such management zones.

EMF Decision support tool

To facilitate the use of the EMF and interpret the sensitivity of the management zone in relation to specific activities a decision support matrix was developed. The matrix can be viewed as the link between the spatial datasets, the activities and/or land uses considered and the strategic objectives for the area.

Development of a spatial screening tool

Once the EMF was finalised a spatial screening tool, assisting in the extraction of spatial data and the interpretation thereof, was developed. The tool allows users to select a specific portion of land and generate a report specifying the environmental sensitivities present on that portion of land. This information is used along with the decision support matrix and management guidelines to inform decision makers and the general public on the issues or non-issues related to envisaged activities.

How to use the EMF

The management guidelines, decision support matrix and spatial screening tool are the key components of the EMF. The EMF will assist relevant authorities in the management of the area and give effect to the three main objectives of the EMF which are to:

- serve as a spatial screening mechanism for EIA;
- provide strategic context for EIA applications in the area; and
- inform strategic spatial planning.

Objective one is achieved through the DSOE dataset, which indicates the issues that should be investigated in more detail during the EIA process, while objectives two and three are achieved through the management zones dataset.

For objective two, the management zones dataset will indicate, through the decision support matrix and accompanying management guidelines, whether an envisaged activity is compatible in a specific area/zone or not, viewed from a strategic perspective.

For objective three, the management zones dataset was used to inform the development of the GTLM Spatial Development Framework (SDF), which is responsible for strategic spatial planning and guiding of land use management in the area.

To achieve objectives one and two, the EMF is applied by following four steps that guide the user through the use of the decision support matrix, DSoE dataset and environmental management zones dataset.

Strategic Environmental Management Plan (SEMP)

Environmental management programmes/plans aim to provide arrangements/guidelines to enhance the positive aspects of a project and prevent undue adverse impacts on the environment. Where an EMF exists, a Strategic Environmental Management Plan (SEMP) should help to establish a sound planning and management framework to guide development planning and decision-making, as opposed to specific activities, in order to reach certain environmental targets. It provides the means to incorporate environmental objectives into development decision-making processes and may prescribe standard approaches to project design and mitigation through environmental guidelines and monitoring requirements, reducing the scope of work for individual EIAs and detailed EMPs for projects.

The GTLM EMF SEMP is the actual implementation component of the EMF. It focusses on the identified desired state themes and consists of the strategic objectives that originate from the Status Quo and Desired State of the Environment analysis, and intervention strategies or action plans that are required to achieve a consistent and effective implementation of the management zones, as well as the responsible organisations (institutional framework) for achieving the targets. Furthermore, it contains management guidelines for the implementation of the EMF, linked to a system of KPIs to evaluate, monitor and report on progress made towards meeting the DSOE strategic objectives.

Strategic environmental management planning is an on-going process that is initiated with the identification of a strategic objective. Once this strategic objective has been identified, different strategies or targets are planned so as to give effect to the identified objective. The implementation of the different strategies so as to achieve the targets is accompanied by monitoring and corrective measures to ensure

continuous improvement. The identified and implemented strategies should be routinely revisited so as to ensure that the identified strategic objective will be met.

EMF SDF alignment

A crucial aspect to consider ensuring the development of the EMF was the alignment between the EMF and other spatial tools – especially the SDF for the GTLM, which was developed concurrently with the GTLM EMF. Alignment between the two tools was flagged as an important outcome from the outset of the project. To ensure the effective alignment of the two tools at a spatial level, the management zones were compared to the SDF proposed ‘nodal edges’ layer that indicates the areas prioritised for future development. The management zones were aligned with the SDF, resulting in ‘Zone A – Urban Development Zone’ reflecting the urban development priorities as indicated in the SDF. The SDF, on the other hand, reflects some of the environmental sensitivity layers developed for the EMF.

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ABBREVIATIONS AND ACRONYMS

Abbreviation or Acronym	Description
CARA	Conservation of Agricultural Resources Act 43 of 1983
CEM	Centre for Environmental Management
DEA	Department of Environmental Affairs
DAFF	Department of Agriculture, Forestry and Fisheries
DMR	Department of Mineral Resources
DOE	Department of Energy
DRDLR	Department of Rural Development and Land Reform
DRSMDM	Dr Ruth Segomotsi Mompati District Municipality
DSoE	Desired State of the Environment
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Plan
GTLM	Greater Taung Local Municipality
GVA	Gross Geographic Value
Ha	Hectares
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IMP	Integrated Management Plan
IUCN	International Union for the Conservation of Nature
MA	Management Authority
MLL	Minimum Living Level
MPRDA	Mineral and Petroleum Resources Development Act 28 of 2002
NDP	National Development Plan
NEMA	National Environmental Management Act 107 of 1998
NEMAQA	National Environmental Management: Air Quality Act 57 of 2003
NEMPAA	National Environmental Management: Protected Areas Act 39 of 2004
NEMWA	National Environmental Management: Waste Act 59 of 2008

Abbreviation or Acronym	Description
NWAQMP	North-West Provincial Air Quality Management Plan
NWPDP	North-West Province Provincial Development Plan
NW READ	North-West Department of Environment, Agricultural and Rural Development
PMT	Project Management Team
PV	Photo Voltaic
SANRAL	South African National Roads Agency
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SEMP	Strategic Environmental Management Plan
SMME	Small, Medium and Micro-sized Enterprises
SPLUMA	Spatial Planning and Land Use Management Act 16 of 2013
ToR	Terms of Reference
TSWHS	Taung Skull World Heritage Site
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHCA	World Heritage Convention Act 49 of 1999
WHS	World Heritage Site

1 READING THIS REPORT

1.1 How to use this report

This report contains a number of sections, namely introduction, approach and methodology, desired state and strategic environmental management plan. **Figure 1** indicates the purpose of the chapters and the information contained in each.

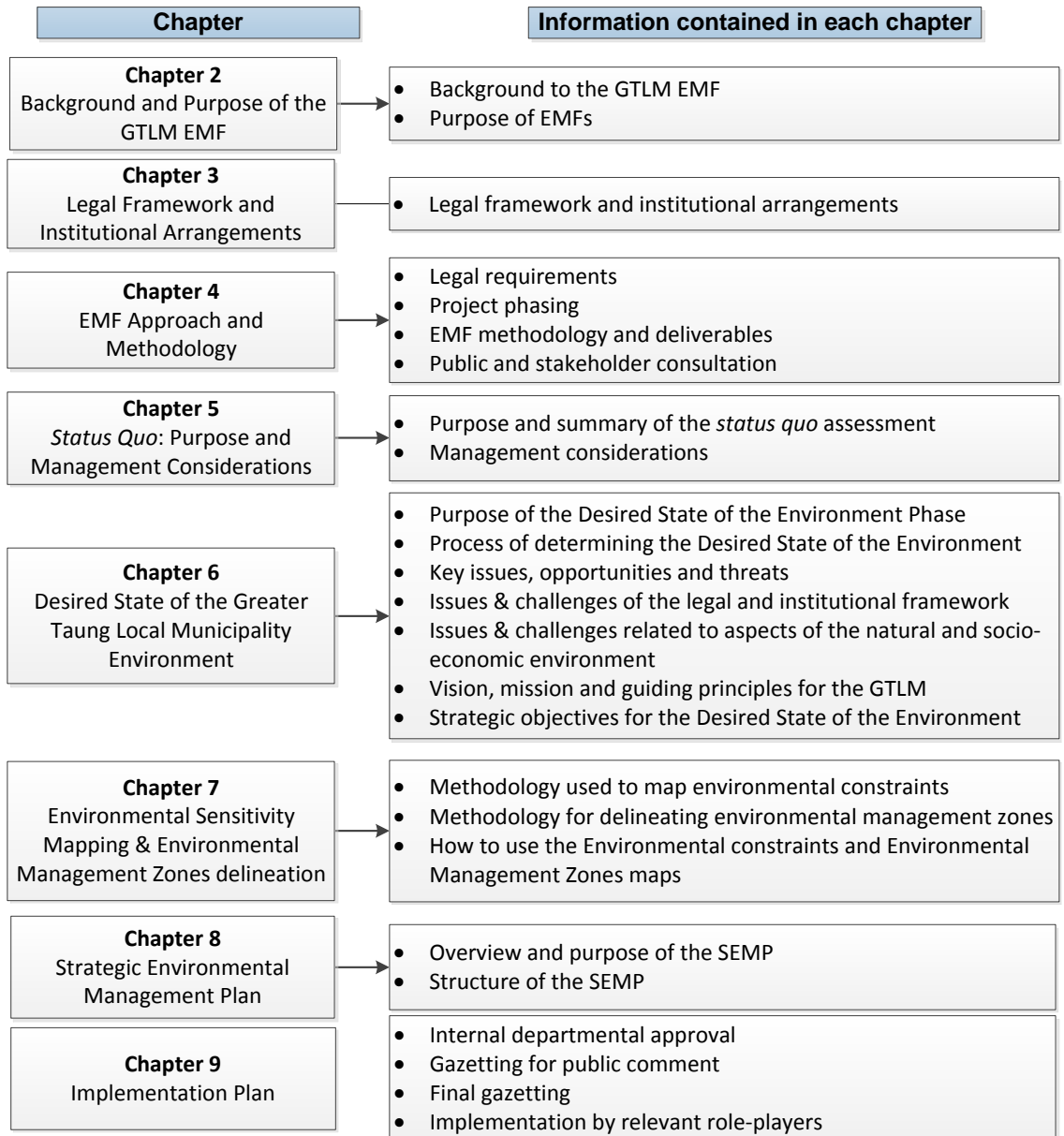


Figure 1. Various chapters and information contained in each

2 BACKGROUND TO AND PURPOSE OF THE GREATER TAUNG LOCAL MUNICIPALITY ENVIRONMENTAL MANAGEMENT FRAMEWORK

The Centre for Environmental Management (CEM) was appointed by the Department of Rural Development and Land Reform (DRDLR) to draft an Environmental Management Framework (EMF) for the Greater Taung Local Municipality (GTLM) in the North West Province to address a number of considerations, discussed under sections 2.1 and 2.2.

The envisaged EMF must inform both project level decision making by the North West provincial government (i.e. EIA authorizations) and the GTLM (i.e. land use authorizations), as well as strategic spatial planning, primarily reflected in the Spatial Development Framework (SDF) of the GTLM.

Part of the appointment brief was also to align the EMF development process with the SDF development process for the GTLM, which were running concurrent with the EMF development process.

2.1 Overview of the Greater Taung Local Municipality (GTLM)

The Greater Taung Local Municipality (GTLM) is located in the south-western part of the North West Province in the area of jurisdiction of the Dr Ruth Segomotsi Mompati District Municipality (DRSMDM) (**Figure 2**). Land use is primarily limited to extensive livestock farming, although some high potential agricultural land can also be found. The agricultural sector, both commercial and subsistence, is the major employer and contributor to the local economy.

The GTLM area also has an interesting and ancient geological heritage that is rich in paleontological artefacts. The Taung Skull site has been declared a National Heritage site, as well as a UNESCO World Heritage Site. Home to the Taung Child fossil, this site, where a juvenile hominid was discovered in December 1924, was included as a serial listing in the Cradle of Humankind World Heritage Site listing, despite being 300km from the Sterkfontein Caves.

As a predominantly rural municipality, GTLM faces serious developmental challenges, including poverty and unemployment, inadequate housing, as well as poor roads, electricity, water and sanitation infrastructure.

Given the number and nature of development applications with environmental impact received by the North West Provincial Department of Rural, Environment and Agricultural Development (NW DREAD) and a need to align spatial plans affecting the area, it is imperative that a consolidated and inclusive approach be followed in the management of this area. It is envisaged that the outputs of the EMF should ultimately inform and be aligned with the municipal SDF.

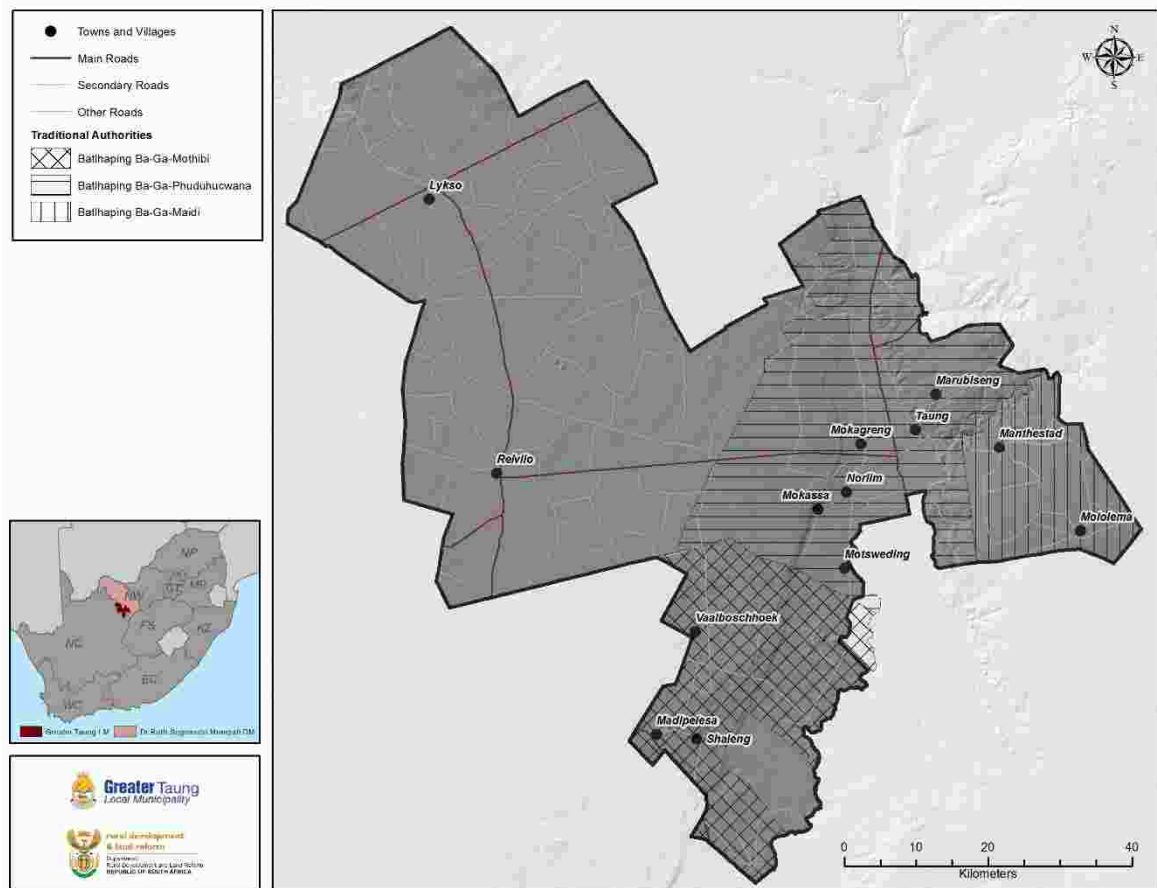


Figure 2. Municipal boundaries of the Greater Taung Local Municipality

2.1.1 Spatial Context

The GTLM covers a geographic area of approximately 563 997 hectares (ha) extending over 3 tribal areas and approximately 520 farms or subdivisions thereof. The GTLM municipal area is predominantly rural and contains a large number of privately owned farms in the western part of the municipal area and 106 widely scattered villages located in three tribal authorities under three paramount chiefs, namely Chief Mankuroane, Chief Mothibi and Chief Motlhabane in the eastern part of the municipal area.

The landscape is bisected from North to South by the Dry Harts and Harts Rivers and the associated valleys into two higher lying areas. To the west, the Ghaap Plateau dominates the landscape, while hills and ridges with a much smaller plateau are found to the east.

There are only three formal settlements in the GTLM, i.e. the towns of Taung, Pudimoe and Reivilo. Regional access to the GTLM is adequate, provided primarily by roads, the largest of which are the N18 from Kimberley, the N14 from Vryburg to Kuruman that passes through the northern part of the GTLM, the R504 from Schweizer Reneke to Pudimoe, as well as the R371 to Reivilo from the N14 and the link road to Taung from the R506 between Schweizer Reneke and Christiana.

2.1.2 Society Stakeholder Groups

When developing an EMF, it is important to realise that the desired state is very much a function of people's interest in society. Therefore, the desired state of the environment for farmers may be vastly different from the desired state for conservationists or local municipalities. It is therefore important to gain an understanding of the various stakeholder groups in the GTLM society.

The following major stakeholder groups have been identified in the GTLM:

- **Tribal authorities and local communities**

The GTLM municipal area is predominantly rural and contains widely scattered villages located in three tribal authorities under three paramount chiefs, namely Chief Mankuroane, Chief Mothibi and Chief Motlhabane in the eastern part of the municipal area. The tribal areas cover approximately 50% of the municipal area.

The dominant historic land use in the tribal areas is mixed agriculture, with some crop farming activities in the Harts River valley and other parts that can be cultivated. This includes irrigated crop farming with water from the Vaal-Harts Irrigation Scheme. Livestock production occurs in those parts of the tribal areas that cannot be cultivated.

- **Commercial farmers**

The GTLM municipal area also contains a large number of privately owned farms in the western part of the municipal area, covering approximately 50% of the municipal area.

The primary land use in the privately-owned commercial farming areas is extensive livestock farming. Crop production or planted pastures are only found on small pockets of land that can be cultivated under irrigation.

- **Municipality**

To effectively manage spatial planning, as well as infrastructure and the socio-economic development of the area, the goals and visions of the GTLM must be considered and incorporated into the EMF.

- **Other government and parastatal stakeholders**

Stakeholders such as the Departments of Rural Development and Land Reform, Agriculture, Forestry and Fisheries, Mineral Resources, Co-operative Governance and Traditional Affairs, as well as Environmental Affairs and Water Affairs all perform important functions relating to one or more of the aspects that need to be considered in the development of the EMF. Parastatal stakeholders with similar interests include entities such as

the National and Provincial Heritage Resources Agencies, Eskom, SANRAL, the Council of Geoscience etc.

2.2 Purpose of EMFs

There is a serious need in South Africa to integrate strategic environmental information with strategic development planning and project level decision making, to ensure adequate protection of the natural resource base in line with the principles of the National Environmental Management Act (NEMA), 107 of 1998.

The purpose and contents of EMFs are specified in the 2010 Environmental Management Framework Regulations (South Africa, 2010), as well as the Guidelines to the 2010 Environmental Management Framework Regulations (South Africa, 2012b).

EMFs are part of the suite of Integrated Environmental Management (IEM) tools that can be used to support informed decisions regarding the management of environmental impacts that arise out of human activities and developments (South Africa, 2012b).

The purpose of EMFs is to function as a support mechanism in the Environmental Impact Assessment (EIA) process in the evaluation and review of development applications, as well as decision-making. EMFs provide a compilation of information and maps, illustrating attributes of the environment for a specific geographical area that becomes useful in a diverse field of environmental applications, including EIA processes, but also other planning processes, such as the development of IDPs, SDFs and other open space planning applications (South Africa, 2012b).

As such, EMFs aim to promote sustainability, secure environmental protection and promote cooperative environmental governance (South Africa, 2010). EMFs that have been adopted by the Minister can be used to facilitate the compilation and consideration of applications for environmental authorisation in terms of the EMF regulations. In this regard EMFs (South Africa, 2012b):

- facilitate co-operative government through the identification of different regulatory responsibilities and recommending mechanisms for addressing the needs of the relevant authorities;
- support informed and integrated decision-making, by making significant and detailed information about an area available before activity proposals are generated;
- contribute to environmentally sustainable development, by:
 - identifying already existing impacts that need to be addressed,
 - anticipating potential impacts, and

- providing early warnings in respect of thresholds, limits and cumulative impacts;
- provide applicants with an early indication of the areas in which it would be potentially appropriate to undertake an activity; and
- support the undertaking of environmental impact assessments in the area by indicating the scope of potential impacts and information needs that may be necessary for environmental impact assessments.

3 POLICY AND LEGAL FRAMEWORK AND INSTITUTIONAL ARRANGEMENTS

This section provides a brief overview of the legal mandate and institutional arrangements that were identified and investigated during the development of the GTLM EMF. **Figure 3** aims to conceptually illustrate the legal status, as well as legally mandated powers and functions within the GTLM.

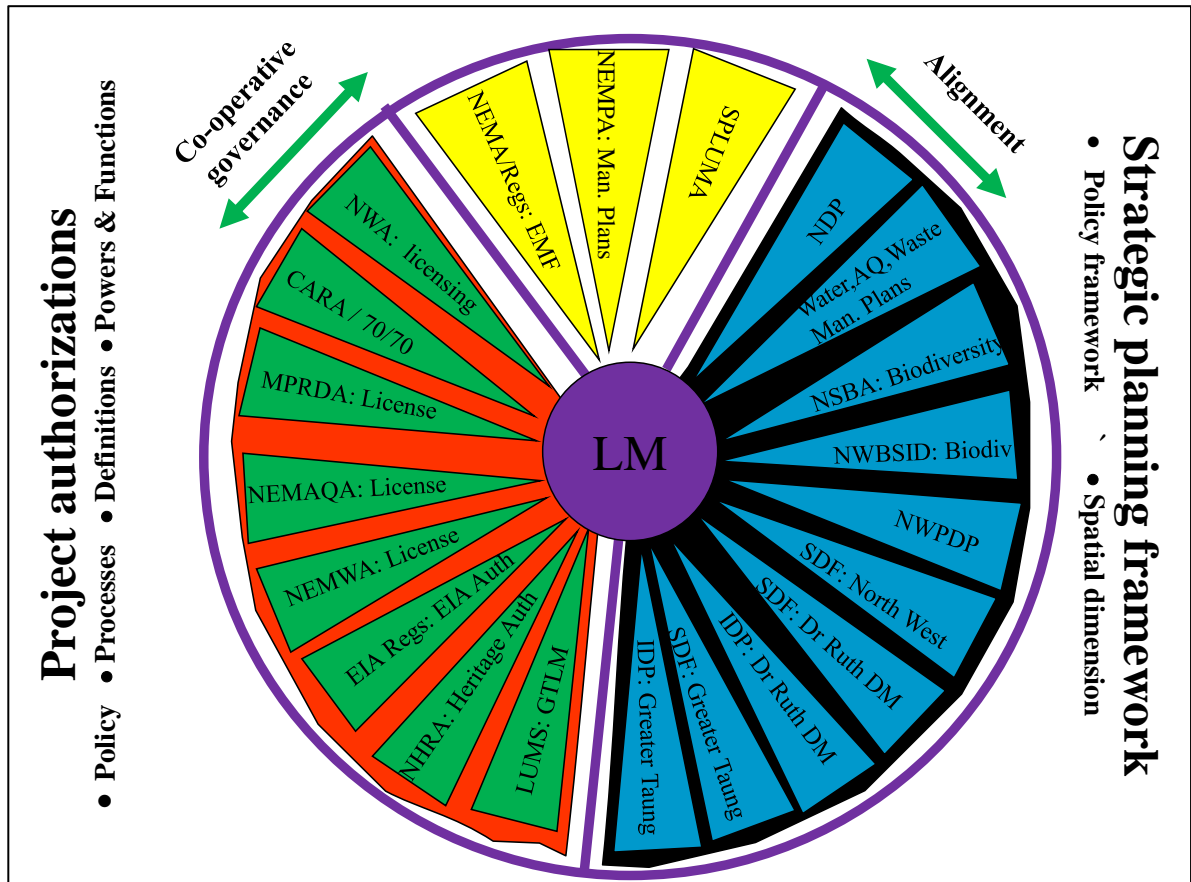


Figure 3. Legal mandate and institutional arrangements for the GTLM EMF

3.1 Institutional arrangements

The GTLM falls under the jurisdiction of a range of national, provincial and municipal institutions. It is important that the goals and visions of these institutions be aligned spatially to allow for effective management of the area.

In terms of environmental and development related aspects, the GTLM falls under the jurisdiction of the national departments of Environmental Affairs; Water and Sanitation; Agriculture, Forestry and Fisheries; Mineral Resources; Rural Development and Land Reform; as well as Human Settlements. With regard to the same aspects, it also falls under the jurisdiction of the following North-West Province departments: Rural, Environmental and Agricultural

Development; Local Government and Traditional Affairs; Human Settlement; Public Safety and Liaison.

The GTLM also falls within the jurisdictional areas of one district and one local municipality, i.e. Dr. Ruth Segomatsi Mompoti District and Greater Taung Local Municipality. The tribal areas also fall under the jurisdiction of the Department of Rural Development and Land Reform.

As listed World Heritage Site, the TSWHS falls under the jurisdiction of the National Department of Environmental Affairs. However, the MEC responsible for Environment and Conservation Management in the North-West Province, has been declared as the Management Authority responsible for the Taung Skull Fossil World Heritage Site for a period of 5 years from 18 July 2014.

3.2 Overview of the policy and legal framework

The legal framework regulating the GTLM EMF is a complex and multifaceted one, spanning over several sectors and across all three spheres of government.

Section 24 of the Constitution stipulates that all South Africans have a right to an environment that is not harmful to their health or well-being and to have the environment protected for the benefit of present and future generations. The Constitution compels everybody to take reasonable steps to prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources.

In the context of this project, the two most important of these, laying the foundation for the management of the area, are the National Environmental Management Act 107 of 1998 (NEMA) and the Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA). The NEMA provides for the compilation of information and maps, by the Minister of Environmental Affairs or an MEC, that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes, which must be taken into account by every competent authority. The SPLUMA requires the development of municipal Spatial Development Frameworks (SDFs) that must include a strategic assessment of the environmental pressures and opportunities within the municipal area, including the spatial location of environmental sensitivities, high potential agricultural land and coastal access strips, where applicable.

Key regulatory instruments, other than those mentioned above, that are to be considered of in the management of the GTLM include *inter alia* the Mineral and Petroleum Resources Development Act 28 of 2002, National Water Act 36 of 1998, the National Environmental Management Biodiversity Act 10 of 2004, National Environmental Management Waste Act 59 of 2008, National Environmental Management: Air Quality Act 39 of 2004, Local Government Municipal Systems Act 32 of 2000 and the National Heritage Resources Act 25

of 1999. These regulatory instruments provide for both strategic and project level considerations that must be taken into account in the management of the GTLM. It must be noted that alignment and co-operative governance is a crucial imperative across the regulatory regime governing the GTLM, at both a strategic and project level.

Other key regulatory instruments that are specifically to be considered in the management of the Taung Skull World Heritage Site (TSWHS) include *inter alia* South African Heritage Convention Act 49 of 1999, which gives effect to the World Heritage Convention of 1972. Furthermore the relevant UNESCO considerations and considerations relating to WHS's in terms of National Environmental Management Protected Areas Act 57 of 2003 play an important role in the current and future regulation of the TSWHS.

3.2.1 The National Development Plan (NDP) policy framework

The South African National Development Plan (NDP), adopted in 2012 and implemented from 2013, aims to eliminate poverty and reduce inequality by 2030. According to the plan, South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society. The NDP envisions a South Africa where everyone feels free yet bounded to others; where everyone embraces their full potential, a country where opportunity is determined not by birth, but by ability, education and hard work. It acknowledges that realising such a society will require transformation of the economy and focused efforts to build the country's capabilities. It also acknowledges that the economy must grow faster and in ways that benefit all South Africans, in order to eliminate poverty and reduce inequality (South Africa, nd a).

The South African government adopted a management for outcomes approach as basis for the government performance monitoring and evaluation system. This approach is designed to ensure that government is focussed on achieving the expected real improvements in the life of all South Africans. It clarifies what government expects to achieve, how they expect to achieve it and how they will know when they have achieved it. It consists of 14 outcomes that collectively address the main strategic priorities of government as a key focus of its work. Each outcome has a limited number of measurable outputs with targets and is linked to a set of activities that will help achieve the targets and contribute to the outcome. Each of the 14 outcomes also has a delivery agreement which in most cases involve all spheres of government and a range of partners outside government. Combined, these agreements reflect government's delivery and implementation plans for its foremost priorities (South Africa, 2015a).

Outcome 10 envisions a South Africa where environmental assets and natural resources are well protected and continually enhanced. It is supported by 5 sub-outcomes: Sub-outcome 1: Ecosystems are sustained and natural resources are used efficiently; Sub-outcome 2: An effective climate change mitigation and adaptation response; Sub-outcome 3: An environmentally sustainable, low-carbon economy resulting from a well-managed just transition; Sub-outcome 4: Enhanced governance systems and capacity and Sub-outcome 5: Sustainable human communities. One of the key actions/activities under sub-outcome 1 is the integration of ecological infrastructure considerations into spatial/land-use planning and decision-making about new developments, i.e. to ensure that greater alignment of sustainability principles in all levels of integrated and spatial planning, as well as in project formulation (South Africa 2015b). The development of environmental management frameworks (EMF) in terms of Section 24 of the National Environmental Management Act and the integration of these EMFs into SDFs through the Spatial Planning and Land Use Management Act 16 of 2013 forms a good basis for ensuring that environmental considerations inform spatial plans, which in turn inform land use patterns.

Simultaneously, the NDP 2030 Vision for Environmental Sustainability and Resilience is that by 2030, South Africa's transition to an environmentally sustainable, climate-change resilient, low-carbon economy and just society will be well under way. In order to realise this vision, there are a number of immediate constraints that must be tackled to address the challenge of deteriorating environmental quality due to pollution and natural resource degradation, destruction and/or depletion (South Africa, nd a).

One of these constraints is the fact that spatial planning and spatial development decisions in South Africa are fragmented and that competing land uses need to be addressed to ensure that industry and infrastructure development programmes promote the long term sustainability of natural systems and the environment. A key action/activity in this regard is the integration of ecological infrastructure considerations into land use planning and decision-making on new developments.

3.2.2 Legal mandate of EMF

In order to provide an understanding of the legal intricacies surrounding the institutional and legal context, it is pertinent to consider the legislative mandate of EMF as described in NEMA. Furthermore it is important to reflect on the legal status and prescribed contents of EMFs to ensure that the EMF adheres to minimum requirements.

3.2.2.1 National Environmental Management Act 107 of 1998

Environmental Management Frameworks (EMFs) have been identified in the National Environmental Management Act (NEMA), 107 of 1998 as part of the suite of Integrated Environmental Management (IEM) tools that can be used to support informed decisions regarding the management of environmental impacts that arise out of human activities and developments (DEA, 2010). These are compilations of information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes, which must be taken into account by every competent authority when making decisions.

The legal status for EMFs is provided by the NEMA in terms of Section 24 of which states:

(2) The Minister, and every MEC with the concurrence of the Minister, may identify—	
(b)	<i>geographical areas based on environmental attributes in which specified activities may not commence without environmental authorisation from the competent authority;</i>
(c)	<i>geographical areas based on environmental attributes in which specified activities may be excluded from authorisation by the competent authority;</i>
(3) The Minister, and every MEC with the concurrence of the Minister, may compile information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account by every competent authority.	

Section 24 O of NEMA states the criteria to be taken into account by competent authorities when considering environmental applications in terms of sec 24, and dictates that inter alia

(1) If the Minister, the Minister of Minerals and Energy, an MEC or identified competent authority considers an application for an environmental authorisation, the Minister, Minister of Minerals and Energy, MEC or competent authority must	
(b)	<i>take into account all relevant factors, which may include</i>
(v)	<i>any information and maps compiled in terms of section 24(3), including any prescribed environmental management frameworks, to the extent that such information, maps and frameworks are relevant to the application</i>

3.2.2.2 NEMA Environmental Management Framework Regulations

The purpose of the Environmental Management Framework Regulations published under NEMA as GNR 547 in GG 33306 of 18 June 2010 is to

2(1) provide	
(a)	<i>for the Minister or MEC with concurrence of the Minister to initiate the compilation of information and maps referred to in section 24(3) of the Act [NEMA] specifying the attributes of the environment in particular geographical areas;</i>
(b)	<i>for such information to inform environmental management; and</i>
(c)	<i>for such information and maps to be used as environmental management frameworks in the consideration, as contemplated in section 24(4)(b)(vi) of the Act, of applications for environmental authorisations in or affecting the geographical areas to which those frameworks apply.</i>

Regulation 2(3) further stipulates that EMFs are aimed at promoting sustainability, securing environmental protection and promoting cooperative environmental governance.

Regulation 3 sets out the process for developing EMFs, while regulation 4 lists the necessary contents thereof:

4 A draft environmental management framework must	
(a)	<i>identify by way of a map or otherwise the geographical area to which it applies;</i>
(b)	<i>specify the attributes of the environment in the area, including the sensitivity, extent, interrelationship and significance of those attributes</i>
(c)	<i>identify any parts in the area to which those attributes relate;</i>
(d)	<i>state the conservation status of the area and in those parts;</i>
(e)	<i>state the environmental management priorities of the area;</i>
(f)	<i>indicate the kind of developments or land uses that would have a significant impact on those attributes and those that would not;</i>
(g)	<i>indicate the kind of developments or land uses that would be undesirable in the area or in specific parts of the area;</i>
(h)	<i>indicate the parts of the area with specific socio-cultural values and the nature of those values;</i>
(i)	<i>identify information gaps;</i>
(j)	<i>indicate a revision schedule for the environmental management framework; and</i>
(k)	<i>include any other matters that may be specified.</i>

After an EMF is adopted, regulation 5(2) requires that such EMF be "taken into account in the consideration of applications for environmental authorisation in or affecting the geographical area to which the framework applies".

3.2.2.3 DEA 2012 EMF guidelines

According to the DEA 2012 EMF guidelines published on 10 October 2012 in GN 806 in GG 35769, the purpose of EMF is:

- to function as a support mechanism in the environmental impact assessment process in the evaluation and review of development applications,
- to inform decision making regarding land-use planning applications.

EMFs provide a compilation of information and maps, illustrating attributes of the environment for a specific geographical area that becomes useful in a diverse field of environmental applications, including EIA processes, but also other planning processes, such as the development of IDPs, SDFs and other open space planning applications.

EMFs that have been adopted by the Minister can be used to facilitate the compilation and consideration of applications for environmental authorisation in terms of the EMF regulations. In this regard -

- EMFs provide applicants with an early indication of the areas in which it would be potentially appropriate to undertake an activity;
- Co-operative government is facilitated through the identification of different regulatory responsibilities and recommending mechanisms for addressing the needs of the relevant authorities; and
- The competent authority has information which will guide and inform decision-making.

The objectives for EMFs include:

- Support informed and integrated decision-making by making significant and detailed information about an area available before activity proposals are generated;
- Contribute to environmentally sustainable development by anticipating potential impacts and by providing early warnings in respect of thresholds, limits and cumulative impacts, and by identifying already existing impacts to be addressed;
- Support the undertaking of environmental impact assessments in the area by indicating the scope of potential impacts and information needs that may be necessary for environmental impact assessments; and
- Support the process of delineating geographical areas within which additional specified activities are to be identified in terms of NEMA;
- Support the process of delineating geographical areas within which activities listed in terms of NEMA may be excluded by identifying areas that are not sensitive to the potential impacts of such activities.

Ultimately, an EMF is a decision support tool, which ensures that the competent authority has sufficient information to guide environmental authorization decisions within a specific geographical area. An EMF must be adopted by the relevant MEC and published in the Government Gazette.

What is clear is that the legal mandate for EMF is vested with the EIA authorities and not directly with the local municipality responsible for land use management in the area. Therefore efforts should be made to ensure integration of processes and co-operative management between the environmental authorities and the GTLM.

The EMF guidelines also indicate that the process to compile an EMF should include an assessment of the status quo in respect of environmental resources, determination of EMF 'parameters' and a public participation process.

3.2.3 Legal mandate for a strategic assessment of the environmental pressures and opportunities of SDFs

3.2.3.1 Spatial Planning and Land Use Management Act 16 of 2013

The Spatial Planning and Land Use Management Act (SPLUMA) No. 16 of 2013 was promulgated to amongst other objectives provide for a uniform, effective and comprehensive system of spatial planning and land use management for the Republic; as well as the sustainable and efficient use of land. It provides a framework for policies, principles, norms and standards for spatial planning and land use management in South Africa and defines the relationship between the spatial planning and the land use management system and other kinds of planning.

The SPLUMA requires the national government to develop mechanisms to support and strengthen the capacity of provinces and municipalities to adopt and implement an effective spatial planning and land use management system and also to provide support and assistance in the performance of its land use management functions and related obligations to any province or municipality, within the constraint of available resources.

Spatial Development Frameworks (SDFs) at national, provincial and municipal spheres of government are important implementing mechanisms in the SPLUMA. In terms of section 12(1)(m) of SPLUMA, the national, provincial and municipal spheres of government must each prepare a spatial development framework (SDF). A SDF adopted in terms of this Act must guide and inform the exercise of any discretion or of any decision taken in terms of the SPLUMA or any other law relating to land use and development of land. Municipal SDFs must assist in integrating, coordinating, aligning and expressing development policies and plans emanating from the various

sectors of the spheres of government, as they apply within the municipal area.

SDFs must also, amongst others, “take cognisance of any environmental management instrument adopted by the relevant environmental management authority”. The inclusion of EMF as one such an environmental management instrument becomes apparent in section 21(j) of the Act, which requires that a municipal SDF includes “a strategic assessment of the environmental pressures and opportunities within the municipal area, including the spatial location of environmental sensitivities, high potential agricultural land and coastal access strips, where applicable”.

In the implementation of the SPLUMA, the Department of Rural Development and Land Reform (DRDLR) must find a mechanism that integrates spatial planning and land use management with strategic IEM tools. Whilst discharging its legal obligation of supporting municipalities in the development of spatial plans, DRDLR must ensure synchronization of spatial tools with strategic environmental tools. It is against this backdrop that the DRDLR is assisting municipalities with the compilation of SDFs.

3.2.4 *Legal framework for the protection of the Taung Skull World Heritage Site*

In order to provide an understanding of the legal intricacies surrounding the TSWHS, it is pertinent to consider the World Heritage Convention of November 1972 and the South African World Heritage Convention Act 49 of 1999, along with relevant UNESCO considerations and considerations relating to WHS's in terms of NEMPAA. These considerations form the point of departure, as they underpin the requirements for the area to maintain its WHS status, and any actions or decisions made in contravention to these requirements will serve to place the WHS status of the area in jeopardy.

3.2.4.1 *The World Heritage Convention, 1972*

The World Heritage Convention of 1972 was ratified by South Africa in 1997, making it one of the 186 signatories to the Convention. The convention, read along with the Implementation Guidelines for the World Heritage Convention¹, serves to place several duties on South Africa as a signatory to the convention. The operational guidelines state in Art. 15 that while fully respecting the sovereignty of the States on whose territory the cultural and natural heritage is situated, States Parties to the Convention recognize the collective interest of the international community to cooperate in the

¹ Available at <http://whc.unesco.org/en/guidelines/>

protection of this heritage. States Parties to the World Heritage Convention, have the responsibility to (Art 6(1) of the WHC) to:

(a)	<i>ensure the identification, nomination, protection, conservation, presentation, and transmission to future generations of the cultural and natural heritage found within their territory, and give help in these tasks to other States Parties that request it; (Art 4 and Art 6(2) of the WHC)</i>
(b)	<i>adopt general policies to give the heritage a function in the life of the community; (Art 5 of the WHC)</i>
(c)	<i>integrate heritage protection into comprehensive planning programmes;</i>
(d)	<i>establish services for the protection, conservation and presentation of the heritage;</i>
(e)	<i>develop scientific and technical studies to identify actions that would counteract the dangers that threaten the heritage;</i>
(f)	<i>take appropriate legal, scientific, technical, administrative and financial measures to protect the heritage;</i>
(g)	<i>foster the establishment or development of national or regional centres for training in the protection, conservation and presentation of the heritage and encourage scientific research in these fields;</i>
(h)	<i>not take any deliberate measures that directly or indirectly damage their heritage or that of another State Party to the Convention;(Art 6(3) of the WHC)</i>
(i)	<i>submit to the World Heritage Committee an inventory of properties suitable for inscription on the World Heritage List (referred to as a Tentative List);(Art 11(1) of the WHC)</i>
(m)	<i>use educational and information programmes to strengthen appreciation and respect by their peoples of the cultural and natural heritage defined in Articles 1 and 2 of the Convention, and to keep the public informed of the dangers threatening this heritage;(Art 27 of the WHC)</i>
(n)	<i>provide information to the World Heritage Committee on the implementation of the World Heritage Convention and state of conservation of properties; (Art 29 of the WHC)</i>

In order to give effect to these obligations, South Africa promulgated the World Heritage Convention Act 49 of 1999, thus effectively incorporating the Convention into South African law².

3.2.4.2 The World Heritage Convention Act 49 of 1999

The WHCA serves as the main vehicle with which the country can give effect to the establishment of World Heritage Sites. The WHCA makes provisions

² Section 2 of the WHCA states: “The Convention is enacted into law in the Republic”

for the establishment of Management Authorities (MA) through the workings of chapter II, and more specifically section 9 of the WHCA³. The powers and duties of an MA are assigned and set out in section 13 of the WHCA.

Chapter IV of the WHCA deals with an Integrated Management Plans (IMP) for every WHS and states (section 21) that every authority must prepare and implement an integrated management plan for the WHS under its control. The authority must furthermore conduct its affairs in accordance with the integrated management plan contemplated in section 21(1)4.

Section 22 of the WHCA deals with the harmonisation of integrated management plans and states that

In preparing an integrated management plan, an Authority must have due regard for, and seek to integrate and harmonise that integrated management plan with the requirements of the Convention and the Operational Guidelines, and with applicable-	
(a)	plans in terms of the National Environmental Management Act, 1998, the National Heritage Resources Act, 1999, the Cultural Institutions Act, 1998 (Act No. 119 of 1998), the Development Facilitation Act, 1995, and the National Parks Act, 1976 (Act No. 57 of 1976);
(b)	provincial government planning and development plans;
(c)	<i>regional planning and development plans;</i>
(d)	<i>local government planning and development plans; and</i>
(e)	<i>existing planning and development plans of an existing organ of state referred to in section 85.</i>

The requirements of section 22 seeks to ensure that planning of world heritage sites does not take place in an *ad hoc* manner, with a silo based approach, leading to fragmentation and uncoordinated efforts in attempting to manage a WHS. Relevant plans that will have to be considered in giving

³ Section 9 states that the Minister may, by notice in the Gazette, establish an authority which is a juristic person with the capacity to sue and be sued in its own name, with so much of the powers and duties set out in this Act, as the Minister may determine.

⁴ Section 21(2) of the WHCA.

⁵ Section 8 of the WHCA reads”

Where an existing organ of state is already lawfully managing or involved in a World Heritage Site, the Minister may, after consultation with the relevant affected MEC or Minister, if applicable, by notice in the Gazette-

(a) declare that such organ of state is an Authority under this Act which is a juristic person with the capacity to sue and be sued in its own name;

(b) give or impose such additional powers or duties referred to in section 13 to that organ of state in relation to that World Heritage Site.

effect to section 22 will be discussed below. Section 23 of the WHCA sets out the objective of the integrated management plans and lists it as

“The object of every integrated management plan is to ensure the protection and management of the World Heritage Site concerned in a manner that is consistent with the objectives and principles of this Act.”⁶

In summary, the WHCA provides inter alia for⁷:

- Recognition and establishment of WHS such as the TSWHS.
- Establishment of (Management) Authorities and granting of additional powers to existing organs of state.
- Powers and duties of such (management) authorities for safeguarding the integrity of WHS's.
- The establishment of Boards and Executive Staff components for MAs.
- Requirements for IMPs for WHSs
- Authority over activities (land use), as well as development matters.

The importance of the above components of the WHCA in relation to the specific project can be summarised as follows:⁸

- The WHCA provides for the application of the principles of sustainable development, augmenting the sustainable development provisions in inter alia the National Heritage Resources Act of 1999 (NHRA) and the NEMA.
- A mandate for the drafting and implementation of an Integrated Management Plan in accordance with Chapter IV of the WHCA, while taking cognisance of all other relevant plans as listed in section 22 of the WHCA.
- The WHCA should be read and applied in conjunction with all other applicable statutes such as the NEMA, NEMPAA and NHRA. The WHCA is thus a parallel regulatory instrument that is not intended to override or replace existing legislation, but to rather complement the existing regulatory framework.

⁶ Section 23 of the WHCA.

⁷ Bosman C.B Vredefort Dome World Heritage Site- Land Use and Infrastructure Management Plan 13.

⁸Adapted from Bosman C.B Vredefort Dome World Heritage Site- Land Use and Infrastructure Management Plan 13

4 EMF APPROACH AND METHODOLOGY

4.1 Legal requirements

According to regulation 3 of the 2010 EMF Regulations, the development of an environmental management framework must include an assessment of -

- the need for an environmental management framework;
- the *status quo* of the geographical area that forms the subject of the environmental management framework;
- the desired state of the environment (DSoE); and
- the way forward to reach the desired state.

Regulation 4 of the 2010 EMF Regulations specifies that a draft environmental management framework must -

- identify by way of a map or otherwise the geographical area to which it applies;
- specify the attributes of the environment in the area, including the sensitivity, extent, interrelationship and significance of those attributes;
- identify any parts in the area to which those attributes relate;
- state the conservation status of the area and in those parts;
- state the environmental management priorities of the area;
- indicate the kind of developments or land uses that would have a significant impact on those attributes and those that would not;
- indicate the kind of developments or land uses that would be undesirable in the area in specific parts of the area;
- indicate the parts of the area with specific socio-cultural values and the nature of those values;
- identify information gaps;
- indicate a revision schedule for the environmental management framework; and
- include any other matters that may be specified.

4.2 Project phasing

The ToR for the project listed seven project phases that reflects four broad phases. However, the project execution is guided by the requirements of the EMF regulations and therefore consists of nine phases. The relationship between the broad phases, ToR project phases and project execution phases is summarised in Table 1.

Table 1: Relationship between the ToR project phases and the project execution phases

Broad phases	ToR phases	Project execution phases
Inception	1. Detailed inception report	1. Inception
Analysis	2. Draft <i>status quo</i> report	2. <i>Status quo</i> analysis
	3. Final <i>status quo</i> report	
	4. Draft Desired State of the Environment	3. Desired State of the Environment
	5. Final Desired State of the Environment	
		4. Sensitivity analysis
Synthesis	6. Draft Environmental Management Framework & Strategic Environmental Management Plan	5. Spatial Desired State of the Environment
		6. Draft Environmental Management Zones & guidelines
		7. Conflict analysis & alignment with SDF
		8a. Final Environmental Management Zones & guidelines
		8b. Strategic Environmental Management Plan
		8c. Final EMF & decision support tool
Implementation	7. Finalisation, approval & training	9. Approval & training

The project involved the following four broad project phases:

- **Inception phase** that includes the preparation, submission and approval of an Inception Report by the Project Management Team (PMT). It also involves the identification of stakeholders who wishes to participate in the EMF process. The stakeholder database was continually updated and expanded during the project.
- **Analysis phase**, which includes assessments of the institutional and governance context and frameworks, biophysical environmental aspects,

social and economic aspects. The results of the analysis phase are documented in a separate *Status Quo* Report.

- **Synthesis phase**, during which strategic significant environmental issues (identified during specialist input and public consultation and documented in the *Status Quo* Report) are summarised; the DSoE of the GTLM is described; Environmental Management Zones (EMZs) are identified (based on environmental sensitivities and the DSOE) and a Strategic Environmental Management Plan is developed that addresses management guidelines for the EMZs and responsibilities.
- **Implementation phase**, which includes the development of an implementation plan and a GIS training manual, as well as all relevant actions required for the implementation, monitoring and maintenance of the EMF.

The nine project execution phases, guided by the requirements of the EMF regulations, can be summarised as follows (**Figure 4**):

- **Phase 1: Inception phase** during which the ToR was deliberated and refined by the Project Management Team (PMT). It culminated in the preparation, submission and approval of an Inception Report by the PMT. It also involved the identification of stakeholders who wished to participate in the EMF process. The stakeholder database was updated and expanded during the course of the process.
- **Phase 2: Status Quo analysis phase**, which included assessments of the institutional and governance context and frameworks (including the policy, legal and institutional, as well as strategic planning contexts), biophysical environmental aspects (including geology and topography, biodiversity, hydrology, air quality and agricultural potential), social and economic aspects (including socio-economic profile, heritage resources, land use, mining, tourism and services infrastructure). The results of the analysis phase have been documented in a separate Status Quo Report.
- **Phases 3 – 6: Synthesis phase** during which the **desired state of the environment (Phase 3)** of the GTLM is described (in terms of an overall development vision and a set of strategic objectives) and **spatially reflected (Phase 5)** based on an analysis of the **sensitivity (Phase 4) of significant environmental features** (as identified from the *status quo* analysis and the inputs provided during the public participation process). The spatial desired state is then translated into **draft environmental management zones (Phase 6)**, with accompanying draft management guidelines.

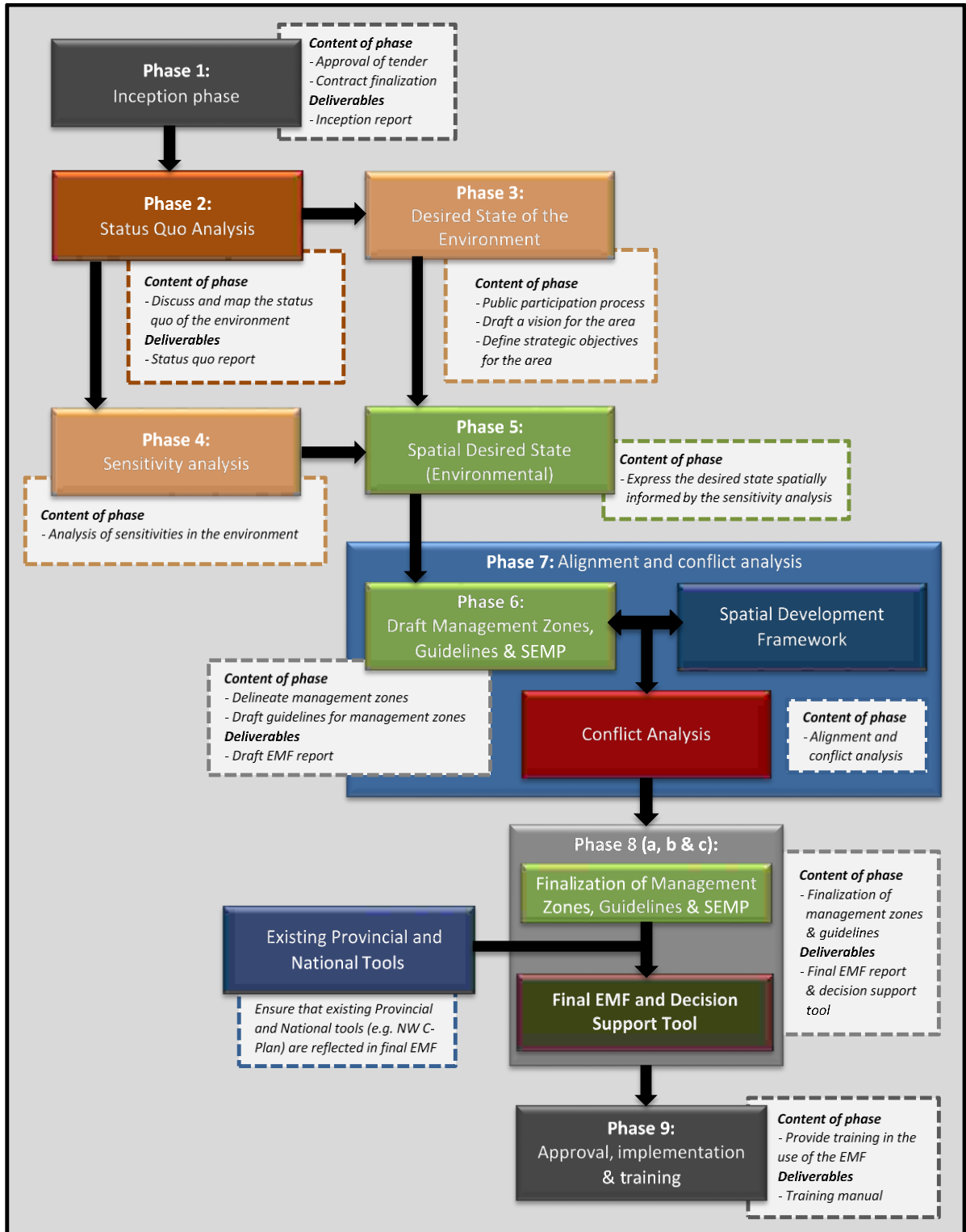


Figure 4. EMF project execution methodology and deliverables

- **Phases 7 – 8: Alignment of the EMF with the SDF**, during which the draft management zones and guidelines are **aligned with the GTLM SDF (Phase 7)**, conflicts identified and addressed. Upon successful alignment, the **management zones with management guidelines are finalised (Phase 8a)**, a **strategic environmental management plan (Phase 8b)**

developed, addressing roles and responsibilities for the EMF implementation and the EMF report finalised (**Phase 8c**).

- **Phase 9: Approval and implementation** phase, which includes the approval of the EMP by all stakeholders, the development of a **GIS training manual**, as well as all relevant actions required for the implementation, monitoring and maintenance of the EMF.

This report includes the deliverables of **phases 3-8**, and has been preceded by the project inception and *status quo* reports in which the results of phases **1 and 2** are documented.

4.3 Public and stakeholder consultation

According to the EMF regulations (South Africa, 2010) public participation must ensure that participation by potential interested and affected parties in the development of the environmental management framework is facilitated in such a manner that all potential interested and affected parties are provided with a reasonable opportunity, sufficient understanding and skill, best suited to the local interests and groups in each geographical area, to provide comment during the process of developing the environmental management framework.

The EMF Guidelines (South Africa, 2012b) stipulate that the following process described in sub-regulation 3(2)(c) of the EMF regulations must be followed as a minimum:

- make the draft EMF available for public inspection at a convenient place;
- invite potential interested and affected parties (I&APs) by means of advertisements in newspapers circulating in the area and in any other appropriate way, to inspect the draft EMF and submit representations and comments in connection with the draft EMF;
- take appropriate steps to ensure that reasonable alternative methods of promoting public participation are followed in instances where people are desiring, but unable to participate in the process due to illiteracy, disability or any other disadvantage;
- consider representations and comments received;
- review the draft in the light of any representations and comments received; and
- prepare a comments and response report including responses to all representations and comments received.

The stakeholder process followed included the identification and analysis of stakeholders, development of a stakeholder database and stakeholder consultation (**Figure 5**).

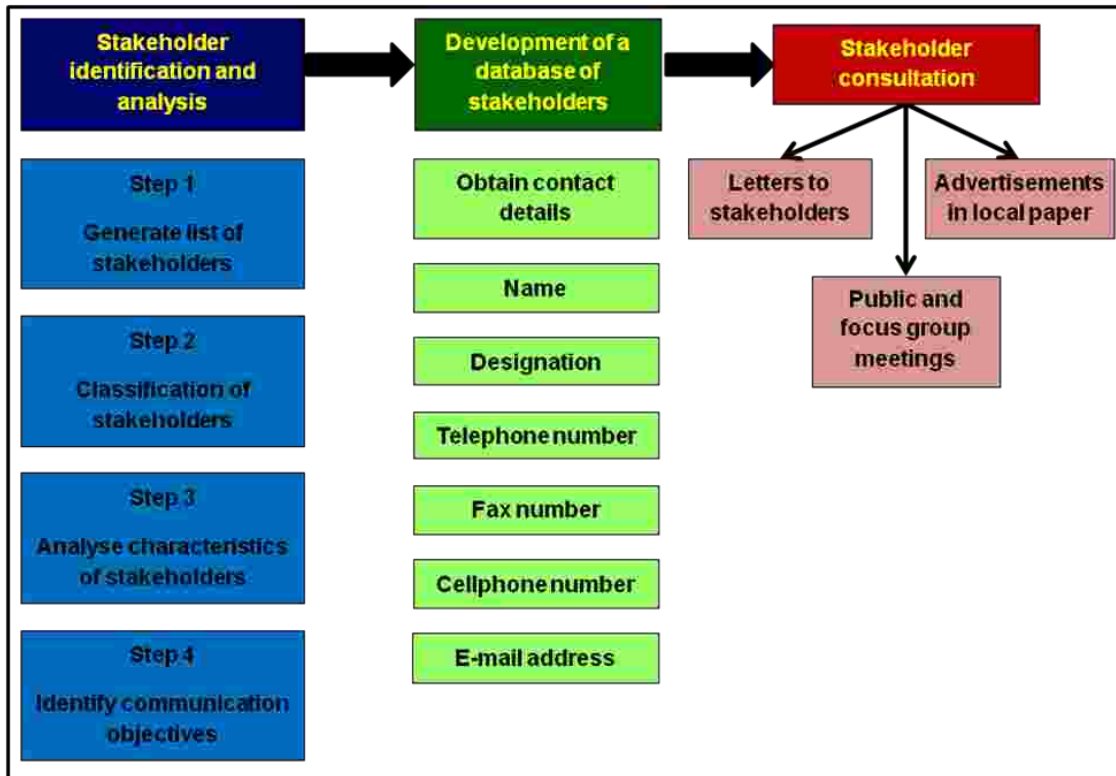


Figure 5. Key aspects of the public and stakeholder consultation process

4.3.1 Stakeholder identification and analysis

Stakeholders were identified in collaboration with the Project Steering Committee and classified into the following five categories, based on the perceived different communication needs and input required from the respective groups:

- Tribal authorities;
- Farmers;
- Municipal officials;
- Government officials;
- General public.

A database was compiled of all stakeholders and revised and updated throughout the project (see Addendum 1).

4.3.2 Public consultation

Different communication methods were employed to communicate with the different groups.

During the project, regular meetings were held with the Project Management Team and Project Steering Committee (Addendum 2). Other meetings included meetings with representatives from the three Traditional Authorities (Addendum 3), representatives from the Taung community (Addendums 4 &

5), as well as focus group meetings with government officials and the scientific community (Addendums 6 & 7). These meetings focussed on introducing the stakeholders to the project, deliberate the desired future state of the environment and inform the stakeholders about the final EMF.

After interaction with the Reivilo farmer's association and Reivilo farmer's union, a meeting took place on 28 April 2015. It was attended by 15 members of the association and union, including private land owners. Although no minutes of the meeting was kept, feedback forms were made available to facilitate public feedback. No completed forms were, however, returned.

At the end of the project, newspaper advertisements were placed in English, and Setswana in the national The New Age newspaper, as well as in English, Afrikaans and Setswana in the local Stellalander newspaper to inform all stakeholder groups, including the general public, of the availability of the final EMF report for public review and comment, as well as public meetings to provide feedback on and discuss the draft Environmental Management Framework (Addendums 8 & 9). A notice in this regard was also circulated to all registered stakeholders.

4.3.3 *Issues raised by the public*

Issues raised by stakeholders and responses are summarised in Table 2.

Table 2: Issues raised by stakeholders and associated responses

Issue	Party	Response
EMF Tribal councils PP Meeting – Taung (29 October 2014)		
<ul style="list-style-type: none"> • A number of villages have mineral resources that could be mined – these include Kudutlou, Kukutleng, Motsema and Mathanthanyaneng. • A number of villages have good agricultural resources – these include Molelema, Matseng and Dekuthing. Generally, the Maldi area is not good for agricultural production. • A number of villages have beautiful natural areas that could be utilised for wildlife protection and tourism facilities. These include Tlapeng, Graspan and Pitsong. • Lenganeng village has strong sun or high radiation and could be a potential site for a solar power plant. • The following villages have good water resources, including rivers and springs – Kukumeng, Mathanthanyaneng and Pitsong. The water quality in the Maldi area is not good. 	Chief of the Maldi	The information about natural resources and potential development opportunities was considered and investigated during the EMF process. Where appropriate, these informed the delineation of the Environmental Management Zones.
<ul style="list-style-type: none"> • There are alluvial diamonds in the vicinity of the Taung dam that could be mined. There are also claims that Modimong village stands on top of a kimberlite pipe. There is also an old marble mine close to the N18. • Both the Taung Skull World Heritage site (Norlim) and the Thumeng heritage site occur in the area, both are tourist attractions. • There are precious underground rocks, beautiful 	Representative of the Chief of the Phuducwane	The information about natural resources and potential development opportunities was considered and investigated during the EMF process. Where appropriate, these informed the delineation of the Environmental Management Zones.

Issue	Party	Response
<p>weathered rocks and river at Buxton, which is also a favourite tourist attraction.</p> <ul style="list-style-type: none"> • The beautiful natural surroundings of Kokonyana village close to the Taung dam can be exploited for tourist facilities. • There are plans for a solar plant in-between the Mogapela A & B villages. • Individuals who have the ownership to high potential cropland do not use the land themselves, but lease it to other people. 		
<p>Possible other heritage sites in the GTLM area include a monument of Goshi, Small Haven close to Thomeng, a footprint in Matlaku and a cave identified as cave for witches at Kolong.</p>	<p>All representatives</p>	<p>The information about heritage sites was considered and investigated during the EMF process. Where appropriate, these informed the delineation of the Environmental Management Zones.</p>
<p>1st EMF Community PP Meeting – Taung (30 October 2014)</p>		
<p>The project team needs to meet with different authorities to identify all agricultural issues.</p>	<p>Community members</p>	<p>The information about natural resources and potential development opportunities was considered and investigated during the EMF process. Where appropriate, these informed the delineation of the Environmental Management Zones.</p>
<p>Local livestock owners are getting fined due to their livestock grazing on private land/farms.</p>		
<p>High potential agricultural and grazing land is being given to people by the chiefs to build houses on.</p>		
<p>There is a need to identify areas that is considered degraded land and also include land rehabilitation in the study.</p>		
<p>There is a unique, beautiful catchment between Kuruman and Vryburg, where surface water accumulates in pans after rainfall. Perhaps something can be done to sustain the area, because of its natural beauty.</p>		

Issue	Party	Response
There is running water at Khakhweng, next to Dry harts - and maybe it can be used for some beneficial purposes.		
There is a need to identify areas that is considered degraded land and also include land rehabilitation in the study.		
2nd EMF Community PP Meeting – Taung (28 January 2016)		
Does the Greater Taung Local Municipality (GTLM) or the community from the GTLM have the power to make decisions regarding development, i.e. specifically regarding heritage resource development?	Community members	The heritage resource in the GTLM is the Taung Skull Fossil Site. This is a World Heritage Site which is protected by national legislation, which is enforced by both the national and provincial (i.e. the North West Department of Rural, Environment and Agricultural Development) spheres of the government. Thus, both the national and provincial spheres of the government have decision-making powers regarding development of heritage resources. The community from the GTLM can provide input into the decision-making process by means of public participation, but they do not have decision-making powers. They can only influence the decision-making process. However, the tribal councils and chiefs in the GTLM have certain decision-making powers. Furthermore, there are many laws that regulate all types of development in South Africa. Usually more than one decision needs to be made by more than one government department.
Trees grow at random. The animals that the community members from the GTLM own graze near the trees. The trees obstruct the view that the owners of the animals have from their settlements. Since the owners of the animals cannot clearly see their animals, this creates an opportunity for thieves to steal the animals. Can the owners of the animals		Animals need both trees and grass to feed on. Animals feed on trees during the winter when the grass is scarce. Trees also provide shelter against weather conditions, they provide shade from the sun and the bird droppings under the trees provide nutrients to the grass. It is not recommended that the trees are cut. It is thus

Issue	Party	Response
cut the trees in an effort to curb theft?		recommended that other mechanisms be considered, such as the relocation of animals or that the owners of the animals hang bells around the animals' necks. This way they can hear the animals when they are out of sight.
<p>The Integrated Development Plan (IDP) is based on the community's needs. The GTLM asks the community what developments they need. The community, for example, replies with a sport field. Can the EMF inform the GTLM on the need for, for example, a sport field?</p> <p>Can the GTLM further suggest another development need if a sport field is not regarded as a priority development need?</p> <p>What if the GTLM and the community from the GTLM agree on the need for, for example a sport field, but the EMF does not regard it as a priority development need?</p>		<p>An EMF considers the environmental constraints that a development need may have on a development location. The development location associated with the least environmental constraints is then regarded as the most suitable development location for that development need. Thus, an EMF only informs about the most suitable location for, for example a sport field. It does not inform on the need or priority thereof. The EMF is not a political decision making tool, it informs on where to develop rather than what to develop.</p>
<p>Along the N18 there is a pound where roaming animals are kept. The number of roaming animals there crossing the road is a problem. Can the GTLM put up road traffic signs to warn motorists of the animals crossing the road as there are many vehicle accidents occurring in the area? This issue has been brought under the attention of the local traffic department in the past without any action resulting therefrom.</p>		<p>The South African National Roads Agency Limited (SANRAL) maintains the road networks in South Africa. This issue must be brought under the attention of the GTLM, which must then bring it under the attention of SANRAL. Thus, the GTLM can assist with this issue, but SANRAL must respond to it.</p>
<p>Can Mr Theunis Meyer assist the community from the GTLM with an enquiry into the management of the 1) animal pound along the N18; as well as 2) roaming animals crossing the road, as mentioned previously?</p>		<p>Mr Theunis Meyer will enquire into the management of the animal pound along the N18 and will inform Ms. Makhumo Mothoa of the outcome of the enquiry.</p>
<p>What are the disadvantages associated with a photovoltaic power station, i.e. a solar park, and what negative impacts, such as underground tanks polluting groundwater, will a solar park have on livestock after 20 years?</p>		<p>The soil, where the solar park will be constructed, will be disturbed since the cables, poles and transformers need to be grounded. The transformers may contain chemicals, such as polychlorinated biphenyl (PCB). Large trees may</p>

Issue	Party	Response
		<p>be cut, since they provide shade that may block the sun's rays from reaching the panels of the solar park. Usually, the vegetation, except for the large trees, is left undisturbed, since grass, for example, may suppress dust that may settle on the panels of the solar park. Small livestock may be allowed to graze under the panels of the solar park, but not cattle, since they may cause damage to the panels' poles. With regards to underground tanks, these usually do not contain harmful chemicals. A solar park is usually operational for 25 years. After 25 years South African legislation mandates that the developers of a solar park rehabilitate the developed area. The operation of a solar park may be extended well beyond 25 years.</p>
<p>Will the EMF address the upgrade of the road networks in the GTLM?</p>		<p>As mentioned previously, SANRAL maintains the road networks in South Africa. The EMF focuses on the development of infrastructure, such as housing, rather than the upgrade of the road networks.</p>
<p>Who is the representative for the EMF at the GTLM?</p>		<p>The representative for the EMF is Ms. Makhuma Mothoa from the GTLM's Land Use Department.</p>
<p>Many roads in the GTLM are not tarred, resulting in a lot of dust emission affecting air quality. Will the EMF deal with this issue?</p>		<p>Road maintenance is a municipal mandate that will be addressed in the future.</p>
<p>The community of the GTLM does acknowledge that the municipality is doing its best to bring services to the people. However the community is currently facing water availability challenges and they request water provision service to be fast tracked.</p>		<p>The GTLM is trying its utmost to provide basic services to all community members in the GTLM, which will improve the quality of life. The GTLM is aware of the lack of water in some areas where settlements are far from water pipelines.</p>

Issue	Party	Response
EMF Reivillo Farmers Association PP Meeting – Reivillo (28 April 2015)		
Land owners in the vicinity of the Pering mine are concerned about the potential impact of the mine on groundwater availability and quality.	Jan van Zyl, Reivilo	The impact of Pering mine and other mining activities on groundwater quality was considered and investigated during the EMF process. Where appropriate, these informed the delineation of the Environmental Management Zones.

5 STATUS QUO: PURPOSE AND SUMMARY (PHASE 2)

5.1 Purpose of the *status quo* assessment

The *status quo* report mapped and discussed the status of various environmental attributes in the GTLM, while also evaluating the importance of individual attributes to the area.

The status quo analysis consisted of two distinct sub-phases, namely:

- A gap analysis in which the availability and quality of existing data related to relevant attributes were determined; and
- An analysis of this data as part of and parallel to the 'desired state of the environment' analysis (Phase 2).

5.2 Summary of the *status quo* assessment

The *status quo* analysis provided the opportunity to source all available data for the various aspects of the GTLM, evaluate these and provide an overview of the current status of a range of parameters related to:

- Strategic planning issues;
- Biophysical issues, including geology, topography and climate, biodiversity and conservation, hydrology and water resources, air quality and agricultural potential;
- Socio-economic issues, including socio-economic profile, infrastructure development, land use, heritage resources, tourism and mining.

From the *status quo* analysis it was clear that a vast volume of data was potentially available for use in the development of an EMF for the GTLM. The greatest challenge was in relating specific spatial datasets to relevant sensitivities associated with certain activities, in a methodologically justifiable and valid manner. **Table 3** presents an overview of the key environmental components considered during the *status quo* analysis and indicates their possible implications for sensitivity.

5.3 Considerations for management

From the analysis in Tables 2-6 it is clear that the key sensitivities in the GTLM relate to surface and groundwater sources, land use, land with high agricultural potential and ecological significance, heritage resources, socio-economic development, and physical infrastructure and built structures, while the primary development opportunities relate to mining, solar potential and tourism.

5.3.1 Protection of water resources

In the arid environment of the GTLM, water is a key environmental component. Large numbers of people rely on groundwater as their only source of water, while irrigation water is an important contributor to unlocking the agricultural potential of the high value cropland.

The area is endowed with various water resources, including valuable underground dolomitic aquifers and associated fountains. Surface water resources are scarce and primarily restricted to the Taung and Spitskop dams, while surface water accumulation in numerous pans and periodic river flows also occur after good rainfall events in the area. The numerous pans and associated wetlands in the area are also important from a biodiversity conservation perspective.

Protecting the valuable water resources is, therefore, imperative to sustainable development in the GTLM and should be a key focus area for management of development activities.

5.3.2 Land use

Many areas in the GTLM area that are currently used for urban development purposes or zoned for such future use are located in environmentally sensitive areas, such as within the 100 year flood line, on dolomitic areas, in close proximity to wetlands and in close proximity to possible red data species habitat. In the past, the GTLM has been subjected to severe flooding, especially in the Harts River Valley.

It is important that development activities should be managed in such a way that land owners and users in the GTLM are allowed to continue with their existing rights relating to the sustainable and efficient lawful use of land, while redressing the imbalances of the past and ensuring that there is equity in the application of spatial development planning and land use management systems.

5.3.3 Agricultural resources

GTLM only has limited areas with high potential agricultural cropland that is unevenly distributed spatially. The potential of the majority of these areas are unlocked through irrigation practices. However, high potential agricultural is being allocated by the chiefs for non-agricultural purposes.

Most of GTLM area is used for extensive livestock farming. In the commercial farming areas, grazing land seems to be in a fair condition, but overgrazing seems to be a common problem on communal land.

Management of development activities should on the one hand focus on the protection of high value agricultural land for agricultural purposes, and on the

other to facilitate initiatives to identify areas that is degraded and implement rehabilitation programmes, linked to improved land management.

5.3.4 Social development

More than 60% of the population in the GTLM has a qualification lower than grade 12, approximately 40% is economically inactive, while approximately 15% live below the MML. Development activities should be managed to facilitate sustainable socio-economic growth in the GTLM, in order to improve the lives of all citizens and progressively meet their basic social and economic needs and build just, sustainable communities.

5.3.5 Heritage resources

The Taung Skull World Heritage site, palaeontologically sensitive Ghaap Plateau and areas east of the Harts valley in the southern part of the municipality, as well as the local heritage resources should be considered in all development activities, in order to conserve and manage a full range of the cultural heritage of the GTLM, especially the TSWHS and the abundant fossils, to ensure sustainable and equitable benefits to the people of Taung.

5.3.6 Physical infrastructure and built structures

In some areas of the GTLM, more than 80% of the households have access to municipal water and electricity. Significantly lower numbers of people, however, have access to flush toilets and waste removal services. The status and condition of basic services have important implications for environmental sensitivity and should therefore be considered in all decisions on development applications.

5.3.7 Ecological significance

A number of areas, where the biodiversity is unique, fairly undisturbed and could potentially be protected for tourism purposes has been identified. This include the cliffs and hills on the western side of the Dry Harts and Harts River valleys that has many springs and unique plant communities that need to be conserved.

In specific areas, the natural scenery provides opportunities for biodiversity protection. Where such areas have not been disturbed by human activities, opportunities exist for wildlife-based tourism developments.

5.3.8 Topography and geology

The eastern edge of the Ghaap Plateau, bordering onto the Dry Harts and Harts River valleys forms unique topographical and geological tufa features. These do not only include the TSWHS, but are also home to locally unique biodiversity and also has cultural and spiritual value to local communities. It

also houses unique areas such as Thomeng falls and the Blue Pools that are used by local communities for religious ceremonies.

Development activities that could negatively impact these unique features should be managed in such a way that the status of the TSWHS is not compromised, while these features are protected as far as possible.

5.3.9 Tourism, mining and solar potential

Tourism opportunities in the GTLM are linked to cultural and natural heritage sites, such as the Taung Skull World Heritage Site; Mmabana Cultural Centre, Dinkwaneng (San rock art near Manthestat), the Blue Pools site, the Thomeng Water Falls, the Taung and Spitskop Dams. Development projects that could stimulate the potential of these natural, cultural and heritage sites should be promoted.

A number of minerals are found in the GTLM area, including lead, manganese, zinc, alluvial diamonds and limestone. Opportunities for growth in the mining sector should be managed in such a way that economic development is stimulated, without threatening the sustainability of local communities.

The Taung and Reivilo areas have great potential to generate electricity from solar energy. The solar development potential of the GTLM area could assist with economic development and small scale employment opportunities in the area. Management of development activities should focus on harnessing the solar potential through local economic development initiatives.

5.3.10 Conflicts and pressures

Some conflicts and pressures that may arise are those pertaining to development clustered around existing infrastructure and natural features. If not effectively managed this type of clustering may contribute to the existing cumulative impacts and cause a number of environmental problems, ranging from water pollution to noise and light pollution. Further conflicting land uses include any land use that will deprive private landowners of their existing rights relating to the lawful use of the land or negatively affect the safe, undisturbed and quiet enjoyment of their properties by the landowners. Conflicts and pressures can, however, be managed if recognised and planned for in a proactive manner, as this framework and other parallel tools set out to do.

Table 3: Status quo summary

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
Strategic planning issues		
<i>Provincial Spatial Development Frameworks (SQ Report, table 4.2)</i>	<p>The NWPSDF identifies the town of Taung as a priority investment area with medium development potential in which social and economic returns are expected to be relatively high compared to other areas. Taung forms part of the ‘Western Corridor’ that links the ‘Platinum Corridor’ with the ‘Treasure Corridor. The Taung irrigation scheme is flagged as an area that should be investigated to determine its potential for further development and optimization and the extent of the measures and initiatives that should be put in place to unlock this potential. The Taung Skull site is further identified as a Provincial tourism priority area for which a detailed implementation plan should be developed and implemented, while a ‘potential tourism zone’ in which eco-tourism opportunities should be explored is also identified for an area north of Lykso. A number of ecological support areas (ESAs) are mapped around the Taung area, with some critical biodiversity areas (CBAs) mapped in the western parts of the municipality. These areas are flagged as important areas from a biodiversity perspective which should be considered when development is planned.</p>	<p>The provincial SDF identifies potential development pressures in terms of future development zones, activity nodes and development corridors. It also reflects on a number of priorities and policy stances that will affect the future development of the area. These priorities highlight potential conflicts in the area.</p>
<i>North West Rural Transport Strategy (SQ Report, table 4.3)</i>	<p>No information available</p>	<p>No information available</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
<p>Municipal Integrated Development Plans (SQ Report, table 4.4)</p>	<p>According to the Dr. Ruth S Mompoti District Municipality (RSMDM) IDP the GTLM is the highest populated and best serviced municipality in terms of electricity in the RSMDM DM. The GTLM further also has the highest unemployment rate.</p> <p>The RSMDM IDP reflects the content of the NWPSDF in terms of potential for economic development and also indicates the town of Taung as one of the key investment area within the DM and the Taung irrigation scheme as a strategic focus for economic growth. Some of the challenges discussed for the GTLM are illegal mining practices, poverty and lack of strong supporting rural nodes that will assist rural development. The IDP suggests the development of a rural development strategy, the improvement of accessibility to priority areas, the provision of basic services and the formalization and development of identified rural nodes to address some of these issues.</p> <p>The GTLM IDP identifies development priorities for the GTLM, which includes the towns of Taung Central, Reivilo and Pudimoe, to initiate and promote sustainable economic growth that is accessible to development through agriculture, heritage and mining. The IDP refers to a number of strategic environmental issues identified in the original Environmental Management Plan, as well as existing environmental impacts that need to be taken into consideration during the implementation of an EMP and the structuring of a strategic framework for the GTLM.</p>	<p>The RSMDM IDP details the geographic, demographic, socio-economic and infrastructural profiles of the district municipality and highlights planned projects and programmes of the district, as well as plans of parastatals and provincial and national sector plans.</p> <p>The main challenge in drafting the GTLM IDP was to prioritize previous and current issues in such a manner that resources will be spread to all corners of GTLM and at the same time preventing fragmentation to address the most basic needs of residents. This challenge also encompasses the balance that need to be struck between resource allocation to areas where rates and taxes are paid by residents who expects a good service and on the other hand to address the backlog in basic infrastructure in other areas. Although this IDP is a future plan, it does not mean that resolutions of Council with regard to previously approved project priorities and projects at local and district level are omitted or replaced.</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
<p><i>Municipal Spatial Development Frameworks (SQ Report, table 4.5)</i></p>	<p>The RSMDM SDF discusses a number of the environmental issues are applicable to the GTLM area, including issues such as effects of seasonal flooding; soil erosion as a result of overgrazing in the rural areas; water contamination of ground water resources as a result of pit latrines; and deforestation. These issues should be considered in the development of the GTLM EMF.</p> <p>It also classifies ridges and valleys “such as those found along the Ghaap Plateau” as significant and sensitive to development, especially when the possible aesthetic impact that development may have on the landscape vista is considered.</p> <p>The RSMDM SDF further proposes the establishment of “environmental protected areas” or “open spaces” in all the most sensitive ecological areas, such as critical biodiversity areas (CBAs), hills, ridges, valleys and wetlands and also calls for the delineation of an urban edge around Taung to curb sprawling urban development which might negatively affect these areas.</p> <p>The issue of illegal utilization of gravel deposits for building material along the Harts River Valley is raised as a serious problem that should be addressed to curb the negative effects of these activities on the environment.</p> <p>The GTLM SDF prioritises the further development of housing, businesses and higher order social services for the town of Taung, the expansion of service delivery throughout the GTLM, along with the development of the tourism value and potential of specific areas and resources in the GTLM. It includes a detailed situation analysis of, as well as spatial planning proposals and implementation strategies for the GTLM.</p>	<p>The SDF forms an integral part of the RSMDM IDP, providing spatial guidelines with regard to projects defined in the IDP and also assisting local municipalities in aligning and prioritizing projects of all sector departments. It addresses five main types of issues within the municipality i.e. planning related issues, service delivery, socio-economic development, rural development and environmental issues.</p> <p>Development pressures are identified in the GTLM SDF in terms of future residential development zones, activity nodes and development corridors. A number of priorities and policy stances that will affect the future development of the area are reflected in the SDF. These priorities further highlight potential conflicts in the area.</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
<p><i>Greater Taung Local Municipality Environmental Management Plan (Table 4.6)</i></p>	<p>The Environmental Management Plan (EMP) identifies the following key environmental priorities:</p> <ul style="list-style-type: none"> • All the existing and potential cultivated land where permanent irrigation can be provided is viewed as high potential agricultural land that must be protected under all circumstances; • Groundwater sources must be managed in order to ensure long-term sustainability; • Large areas of the GTLM are affected by veld degradation due to overgrazing. Livestock farming can be drastically improved by a more efficient application and extension of veld restoration; • All environmental sensitive areas must be protected against physical development, while programmes such as Working for Water, Bush Control, Land Care and Working for Wetlands should play an important role in the preservation of such areas. • Flood lines needs to be determined for the Rooiwal village west of Taung and most of the open spaces within the other villages that consist of wetland areas (small streams). Affected households should accordingly be informed to prevent the occasional flooding of properties. <p>The EMP also identifies five related zones that will have an impact on the spatial development of the area. These include agricultural areas, topographical features, other natural areas, geological features and cultural heritage</p>	<p>The Environmental Management Plan, done as part of the SDF, identifies the key environmental priorities and five related zones that will have an impact on the spatial development of the area.</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
	sites.	
Biophysical issues		
Topography, geology, soil and climate		
<i>Topography (SQ Report, table 5.1)</i>	The general topography of the area in the municipality varies in a west —east direction. The Harts River and its tributaries dissect the GTLM area into low lying linear north-south valley with flood plains, around Taung village, in the central parts of the area, with higher lying land on the western and eastern sides of the valley.	Ridges are often the most intact features in a transformed landscape due to their inaccessibility, while valleys can often be associated with unique vegetation features. Both these features should be regarded as sensitive to activities that might degrade them.
<i>Geology (SQ Report, table 5.2)</i>	The geological character of the GTLM area is dominated by sedimentary rock formations, such as dolomite, limestone, chert, sandstone, shale and siltstone. Dolomite covers approximately 60-70% of the municipal area, primarily on the Ghaap Plateau in the western parts of the area, interspersed with pockets of sandstone. East of the Ghaap Plateau the geology changes from dolomite to other sedimentary rocks, such as shale, siltstone, arenite and pockets of tillite. Small pockets of volcanic dolerite rocks also occur interspersed with the sedimentary rocks. East of the Harts River Valley, the geology changes from sedimentary rocks to primarily volcanic andesite rock formations, interspersed with pockets of arenite and tuff.	Due to scale constraints the dataset will not be used for mapping sensitivity. However, geological diversity is often an indicator of the diversity of fauna and flora that can be expected in an area, therefore geological units will be used as one of the environmental attributes when habitat modelling is applied in the mapping of areas of high biodiversity.
<i>Soil (SQ Report, table 5.3)</i>	Shallow soils with minimal development, usually on hard or weathering rock, with lime generally present in part or most of the landscape, cover more than 50% of the GTLM area, primarily in the central parts. Red soils, or red and yellow	The scale of the general soils dataset and the fact that the dataset was derived from the land type dataset renders it unsuitable for further use in this study.

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
	well-drained sandy soils, all with high base status occur in the north-western and eastern parts of the municipality, with a pocket in the central northern part. In the south-eastern part of the GTLM area, strongly structured soils with a marked accumulation of clay and non-reddish of colour can be found.	
<i>Climate (SQ Report, table 5.4)</i>	The GTLM area has a semi-arid continental climate. The annual rainfall over virtually all of the GTLM area is 401-600 mm, with only a small part in the north-western corner with a very low annual rainfall. The average maximum summer temperatures in the central parts of the GTLM area around the Harts River valley, as well as in the north-western corner of the area exceed 31°C, while the higher lying areas to the west (Ghaap Plateau) and east are slightly cooler. The lowest average minimum winter temperatures between 0-1.9 °C is measured in the higher lying western and eastern areas, while the biggest part of the GTLM area experiences slightly higher average minimum winter temperatures. The highest average minimum winter temperatures are found in small pockets in the Dry Harts and Harts River valleys, probably sheltered from the cold by the Ghaap Plateau escarpment and the hills and valleys in the vicinity of the Taung dam.	Although the climate information might not have any direct relevance to sensitivity , it is useful for the determination of habitat types in the GTLM. However, the low rainfall and a high evaporation rate limits the type of agricultural activities than can be practiced.
Hydrology		
<i>Surface water resources (SQ Report, table 5.5)</i>	The Harts River is one of the most significant tributaries of the Vaal River. From its origins near the town of Lichtenburg, the Harts River flows in a south-westerly	Significant surface water features in GTLM, as well as their tributaries should be regarded as sensitive to activities that might further deteriorate

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
	<p>direction via Barberspan, the Taung and Spitskop dams into the Vaal River near Delportshoop. The catchments includes the Great Harts River, the Little Harts River and a seasonal river, the Dry Harts River near Taung. In the GTLM, the perennial Harts river flows in a south-western direction past the Taung village, while the seasonal Dry Harts river flows in a southerly direction into the Harts river south of Taung, only after high rainfall events.</p> <p>The Harts River catchment area is well regulated by the both the Taung and Spitskop dams. The Taung dam has the potential to support future water demands in the municipality, especially for the Taung irrigation scheme. The yield of the Spitskop dam that is situated in the Southern part of the GTLM is largely dependent on the return flows from the Vaalharts Irrigation Scheme. Consequently, the water quality in the dam is not good.</p> <p>The catchments also receives water from the Vaal River via the Vaalharts Irrigation Scheme, situated immediately south of the GTLM, outside the GTLM area.. The Vaal River, routed through the Vaal Harts North Canal, is presently the only bulk water supply source in the GTLM.</p> <p>The major water uses in the Harts River catchment are domestic and agriculture, i.e. irrigation and livestock watering. Intensive irrigation practices occur in the Vaalharts Irrigation Scheme.</p>	<p>their quality. The importance and significance of surface water resources will be considered when the management zones are delineated for the EMF and compatible uses/activities are discussed.</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
<i>Flood lines and flood risk areas (SQ Report, table 5.6)</i>	<p>In the past, the GTLM has been subjected to severe flooding, especially in the Harts River Valley. It is apparent that the Taung, Mokagreng, Norlim and Motsweding villages are at risk of being affected by floods.</p>	<p>Floods can have devastating consequences on communities that live nearby rivers or other water bodies and result in significant financial losses due to the destruction of infrastructure. Flood lines will be considered in the demarcation of environmental management zones for the EMF and urban development will be discouraged in these areas.</p>
<i>Groundwater resources (SQ Report, table 5.7)</i>	<p>Groundwater utilisation is of major importance in the Lower Vaal water management area and constitutes the only source of water over much of the water management area. Large dolomitic aquifers occur in the uppermost reaches of the Harts River. Significant quantities of groundwater are abstracted in the Harts river area. Groundwater use is controlled by the location of towns (which use groundwater), mines (dewatering) and the availability of suitable soil for growing crops (irrigation). Localised over-exploitation occurs in some areas, due to excessive use for irrigation.</p> <p>Groundwater quality in the Ghaap Plateau dolomites is generally good, although brackish (mineralised) water is found in the drier areas and more saline water occurs in polluted areas. In the GTLM area, pollution of dolomitic groundwater as a result of the mining activities is experienced at the Pering Mine near Reivilo.</p> <p>Groundwater also plays an essential role in the replenishing of surface water resources such as the Harts river and Taung dam.</p>	<p>The use of groundwater resources in rural regions such as the GTLM is important to sustain local communities and agricultural practices. The extraction of groundwater should therefore be done in a sustainable manner that considers water levels, water balances, an appropriate abstraction schedule that takes into account local hydro-geological conditions, and the implementation of water conservation and demand management measures. Groundwater resources should be considered in the development of the EMF, especially in areas where the groundwater yield is considered to be low.</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
<i>Buffer zones around surface water resources (SQ Report, table 5.8)</i>	<p>There are numerous water courses and wetlands in the GTLM. The water course are primarily located in the central and eastern parts of the GTLM area, while most of the wetlands are situated in the north-western parts, with several in the eastern parts. To protect these water bodies, buffer zones around these features should be treated with great care.</p>	<p>To protect the water bodies, areas within the buffer zones around wetlands and water courses should be considered sensitive to development activities and considered in the development of the EMF.</p>
<i>Water pollution sources (SQ Report, table 5.9)</i>	<p>Several economic activities in GTLM has the potential to contribute to water pollution, including agricultural activities, mining operations, industrial activities, municipal sewage treatment works and landfill sites. Extensive crop irrigation activities occur in the eastern part of the GTLM, while dry-land crop production in the north-western parts of the GTLM also have the potential to contribute to water pollution. Some mining operations are located in the central region and industrial activities in Taung.</p> <p>Crop irrigation in the Taung irrigation scheme is a significant source of water pollution. The return flow from irrigated land causes a severe elevation in the concentration of sulphate, sodium, chloride, ammonia, nitrate and orthophosphates, probably due to the use of pesticides, herbicides and fertilisers by commercial farmers.</p>	<p>Agricultural activities seem to be the biggest potential contributor to water pollution in the GTLM area, followed by faulty sewage treatment facilities and unsafe landfill sites. Understanding the characteristics and distribution of such pollution sources in the GTLM is important. These activities should be considered in the development of the EMF and managed in a way that will ensure that their contribution to water pollution in the area is prevented or minimised.</p>
<i>Surface water quality (SQ Report, table 5.10)</i>	<p>The overall water quality status of the lower Harts River is in a fair to poor condition, while the upper region remains in a good to fair condition.</p> <p>Upstream of Taung dam, there are no specific water quality variables of concern, while the water quality in Taung Dam</p>	<p>Surface water quality seems to be a major constraint to increased agricultural development in the GTLM. Although the available water in the Taung dam could potentially be used for irrigation farming activities, the</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
	<p>is good and suitable for domestic and irrigation use. Downstream of Taung Dam the water quality deteriorates with increased concentrations of nutrients and toxic substances, to the extent that the use of the water will result in yield loss of crops and will require the addition of gypsum to manage the high sodium concentrations in the water. The water quality is possibly being impacted by return flows from the irrigation areas and urban runoff. Water in the Harts River downstream of the Vaalharts irrigation scheme is of exceptional high salinity as a result of saline leachate from the irrigation fields, and needs to be carefully managed through blending with fresher water. Water quality in the lower reaches of the Vaal River is also impacted upon by irrigation return flows from the Harts River, necessitating further blending with low salinity water from the Orange River at the Douglas weir. There is a significant deterioration in the Harts River water quality at Espagsdrift, due to the return flows from the Vaalharts Irrigation Scheme, resulting in increased nutrient and salinity loads entering Spitskop Dam.</p>	<p>negative impact of the return water flow into the Harts River and Spitskop dam is preventing the water from being used for this purpose. Any additional water pollution sources will further reduce the poor water quality of the lower Harts River and the Spitskop dam, with subsequent negative impacts on the agricultural productivity in the irrigation areas further downstream.</p>
Air quality		
<p><i>Greenhouse gas emissions for South Africa (Air quality) (SQ Report, table 5.11)</i></p>	<p>The GTLM does not experience significantly high levels of pollution from major polluters such as industrial activities and mining related processes. A major source of air pollution might be unpaved roads, bare areas and agricultural lands, causing dust pollution. The burning of wood, paraffin and coal for heating and cooking purposes</p>	<p>Due to the coarse scale of the data it will not be usable for determining sensitivity and is only useful as an overview.</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
	also causes particulate pollution (particularly suit), while the waste water treatment works also release methane emissions.	
<i>Possible atmospheric pollution sources (SQ Report, table 5.12)</i>	The NWAQMP lists a range of air pollution sources in the GTLM, including agricultural activities, small industrial operations such as boilers, carpentry, panel beaters, diamond mining, brick works, burning of waste in informal settlements, (dirt and tar) roads, landfill sites and a water purification plant. Although some mining activities do exist in the GTLM, these are localised and unlikely to have any significant effect on the air quality in the region. Emission sources such as gravel roads, patches of bare soil, agricultural fields, the burning of wood, paraffin and coal in and around houses and veld fires are most likely to affect large numbers of the local population. The impacts of these sources may further be more distinct during specific times of the year, for example the windy season when more dust is lifted into the atmosphere, causing higher levels of particulate pollution, while smog might be more visible in winter times, due to the higher levels of fuel burning in populated areas.	Particulate sources of air pollution and pollution from industries and mines are the major threats in the area.
Biodiversity and conservation		
<i>National vegetation types (SQ Report, table 5.13)</i>	Seven different vegetation types are present within the boundaries of the GTLM. The central part of the GTLM is dominated by the Ghaap Plateau Vaalbosveld vegetation type, whilst the eastern and south eastern parts consist of the Kimberley and Schmidsdriif Thornveld vegetation type	Due to scale constraints the dataset will not be used for mapping sensitivity, it will however be used in refining habitat classes .

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
	<p>respectively. In the far north western corner of the GTLM the Mafikeng Bushveld vegetation type can be found with the Kuruman Vaalbos bordering south thereof. Isolated vegetation patches of Southern Kalahari Salt Pans are also present within the GTLM.</p>	
<p><i>Threatened terrestrial ecosystems (SQ Report, table 5.14)</i></p>	<p>The majority of the terrestrial ecosystems within the GTLM are classified as least threatened, with only the Mafikeng Bushveld vegetation type in the far north-western part of the GTLM declared as vulnerable. No critically endangered or endangered ecosystems are found within the boundaries of the GTLM.</p>	<p>Areas identified as threatened terrestrial ecosystems will automatically trigger basic assessments for certain activities listed in Listing Notice 3. Although at a coarse scale, the two listed threatened terrestrial ecosystems in the study area must be considered sensitive.</p>
<p><i>National Biodiversity Assessment (Terrestrial component) (SQ Report, table 5.15)</i></p>	<p>The majority of the vegetation type ecosystems within the GTLM are not protected. No ecosystems within the GTLM which are well or even moderately protected. Only one vegetation type, Kimberley Thornveld, that occurs in the far eastern part of the municipality is protected, although poorly so.</p>	<p>Due to scale constraints the dataset will not be used for mapping sensitivity, however, important areas identified in the NBA are also reflected in the listed threatened terrestrial ecosystems dataset that will be considered.</p>
<p><i>National Protected Areas Expansion Strategy (SQ Report, table 5.16)</i></p>	<p>Declared priority areas are large, intact and unfragmented areas suitable for the creation or expansion of large protected areas. The only declared priority area within the boundaries of the GTLM is the threatened Mafikeng Bushveld vegetation type, located in the north western part of the municipality, north east of the town of Lykso.</p>	<p>Focus areas identified in the NPAES will automatically trigger basic assessments for certain activities listed in Listing Notice 3. Although the data is at a coarse scale, the focus areas in the GTLM area must be considered sensitive.</p>
<p><i>Areas of high biodiversity (SQ Report, table 5.17)</i></p>	<p>The Ghaap Plateau, which stretches from the Harts River to the Kuruman hills (beyond the boundaries of the North West Province) contains a number of conspicuous sensitive areas with high biodiversity, especially where gorges and</p>	<p>Identification of more sensitive biodiversity areas has been limited severely by a lack of data. Areas of high biodiversity are important indicators for sensitivity as it reflects the status</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
	<p>cliffs have been formed by water courses cutting through the plateau. Wetlands are also regarded as areas of high biodiversity providing habitat to species such as <i>Crinum bulbispermum</i> (Orange River Lilly), <i>Nerine laticoma</i> (Vleilelie) and <i>Pyxicephalus adspersus</i> (Giant Bullfrog).</p>	<p>of available habitat and connectivity in the area. Intact areas of possible high biodiversity should be regarded as sensitive in the context of the area.</p>
<p><i>Areas of critical biodiversity (SQ Report, table 5.18)</i></p>	<p>Nearly the totality of the GTLM area is regarded as areas of critical biodiversity, in terms of both terrestrial and aquatic ecosystems.</p> <p>Only small, fragmented areas are identified as natural terrestrial landscapes that are critical for retaining biodiversity and supporting continued ecosystem functioning and services, primarily along the Dry Harts River and in patches in the Harts River Valley, as well as around the depression wetlands between Reivilo and Lykso. Some of these are fully intact and undisturbed, while a large portion of the remainder of the GTLM area are identified as near-natural landscapes, where ecosystems and species are largely intact and undisturbed.</p> <p>In the remaining areas that have not been identified as critical areas for retaining biodiversity and supporting continued ecosystem functioning and services, a large number of patches occur that are identified as areas that are not essential for meeting biodiversity representation targets/thresholds, but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration.</p>	<p>From a land-use planning perspective it is useful to think of the difference between CBAs and ESAs in terms of where in the landscape the biodiversity impact of any land-use activity is most significant. For CBAs the biodiversity impact of a change in land-use is most significant locally at the point of impact through the direct loss of a biodiversity feature (e.g. loss of a populations or habitat). For ESAs the biodiversity impact is most significant elsewhere in the landscape through the indirect loss of biodiversity due to a breakdown, interruption or loss of an ecological process pathway (e.g. removing a corridor results in a population going extinct elsewhere or a new plantation locally, results in a reduction in stream flow at the catchment's exit which affects downstream biodiversity).</p> <p>Both CBAs and ESA are important for the achievement of provincial conservation goals and should be considered in the sensitivity analysis of the EMF. CBAs will also trigger basic assessments in terms of Listing Notice 3 (RSA, 2014b) of the EIA regulations.</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
	<p>Large parts of the GTLM area has also been identified as aquatic ecosystems that are critical for retaining biodiversity and supporting continued ecosystem functioning and services, either as natural landscapes where ecosystems and species are fully intact and undisturbed or as near-natural landscapes, where ecosystems and species are largely intact and undisturbed.</p> <p>Fairly large parts of the remainder of the GTLM area are identified as aquatic features that are not essential for meeting biodiversity representation targets/thresholds, but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development. Again, some of these occur in the remaining areas that have not been identified as critical biodiversity areas.</p> <p>It is lastly also interesting to note that some areas that are important from a terrestrial ecology point of view, are not important from an aquatic ecology point of view and <i>vice versa</i>.</p>	
<i>Potential red data species habitat (SQ Report, table 5.19)</i>	<p>Wetland habitats (valley bottom wetlands, floodplain wetlands and pans) are regarded as critical within the context of red data species habitat. These include Southern Kalahari Salt Pans in the GTLM area that are regarded as especially significant.</p>	<p>Potential habitat for red data listed species naturally becomes sensitive for any type of activity which threatens to destroy it and consequently threaten the associated species. These areas will be considered sensitive to activities that might degrade potential habitat.</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
<i>Griqualand West centre of endemism (SQ Report, table 5.20)</i>	<p>The central and western part of the GTLM, west of the Dry-Harts and Harts River valleys on the Ghaap Plateau forms part of the eastern section of the Griqualand West Centre of Floristic Endemism</p>	<p>Research studies are currently underway to re-examine the boundaries of the GWCE and preliminary results suggests that some areas within the GTLM currently indicated as part of the GWCE may in future be excluded. However, as a precaution the areas currently indicated within the Greater Taung District should be regarded as sensitive, but degrees of sensitivity with regard to the GWCE will have to be determined in more detail.</p>
<i>Important bird areas (SQ Report, table 5.21)</i>	<p>The Spitskop Dam, located along the Harts River in the most southern section of the GTLM is the only important bird area (IBA) within the GTLM. It is listed as an IBA of Global significance that is currently unprotected. As one of the largest wetlands in the semi-arid Northern Cape region that holds water permanently, regularly supporting up to 10 000 birds, it is a vital water source when all the other ephemeral and temporary wetlands in the region have dried up.</p> <p>Ownership of the dam is shared by the Department of Water Affairs (DWA), private landowners and the State. DWA manages the dam for water consumption and recreation, while the land in the rural northern section is intensively grazed by livestock. Excessive livestock grazing, hunting and poaching of birds, residential land uses and pollution from agricultural pesticides and fertilisers remain a threat to the system.</p>	<p>The Spitskop Dam IBA is one of the global significant IBAs in South Africa and should be regarded as sensitive to any activities that might alter the current status of bird populations in the area.</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
<i>National Freshwater Ecosystem Priority Areas (SQ Report, table 5.22)</i>	<p>All but two rivers within the boundaries of the GTLM are rated as moderately modified. These include the Harts River, Dry Harts River, Phokwane, Mamaneng, Tskonyane, Blue Pool and Moshaweng streams. A stretch of the Hartsriver that flows past the settlement of Norlim is classified as largely modified. Only one river in the southern part of the GTLM area is rated as unmodified or natural. The far north-western part of the GTLM area around Lykso has been identified as an upstream management area, which means that human activities in these sub quaternary catchments need to be managed to prevent degradation of downstream river Freshwater Ecosystem Priority Areas and Fish Support Areas. One sub quaternary catchment of the Great Harts River in the north-eastern part of the GTLM area is classified as a catchment that should not be allowed to degrade further, as it may in future be considered for rehabilitation.</p>	<p>NFEPAs that need to stay in a good condition in order to conserve freshwater ecosystems and protect water resources for human use, are important for the management of freshwater resources in South Africa. This does not mean that these need to be fenced off from human use, but rather that they should be supported by good planning, decision-making and management to ensure that human use does not significantly impact on the condition of the ecosystem.</p> <p>NFEPAs will be regarded as sensitive to certain activities that might degrade them. Thought will have to be put into the management of these activities to ensure that they have no negative effect on the condition of the ecosystem.</p>
<i>Wetlands (SQ Report, table 5.23)</i>	<p>Various types of wetlands occur within the boundaries of the GTLM. A well-formed channelled valley-bottom wetland is along the Harts River in the vicinity of Taung dam, while floodplain wetlands occur adjacent to the Dry Harts and Harts rivers, running north-south through the GTLM area. The majority of the depression, flat, seep and valley-head seep wetlands occur on the Ghaap Plateau and the higher lying areas in the eastern part of the GTLM area.</p> <p>In the central, north-western and eastern parts of the municipality, significant wetland clusters, consisting of various types of wetland embedded in a relatively natural</p>	<p>Wetlands are the most threatened of all South Africa's ecosystems and are in dire need of protection. Wetlands and areas in close proximity to wetlands should be regarded as sensitive.</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
	<p>landscape matrix have been identified. Such clusters, through which dispersal between wetlands can occur (e.g. frogs and invertebrates), will allow for important ecological processes such as migration of frogs and insects between wetlands.</p>	
<p><i>Likely riparian areas (SQ Report, table 5.24)</i></p>	<p>Riparian vegetation can primarily be found along the Dry Harts and Harts rivers flowing north-south in the GTLM. Isolated patches of the riparian habitat, associated with the scattered depression (pan) wetlands are also found throughout the western part of the GTLM area. A small area of riparian habitat (in the vicinity of the Spitskop Dam) also occurs in the southern part of the GTLM area.</p>	<p>Riparian areas are an integral part of the river ecosystem and are regarded as important ecological features, which often experience substantial development pressures.</p> <p>It should be noted that riparian habitat along the river systems in the GTLM area supports the biodiversity corridor proposed by the North West Critical Biodiversity Assessment 'to some extent'. Therefore these areas should be regarded as sensitive to activities that threaten to severely degrade them and the ecological processes they support. They should be protected where possible.</p>
<p><i>Existing open space system (SQ Report, table 5.25)</i></p>	<p>Very few public open spaces occurs within the GTLM. The largest section of existing public open space is found within the greater Taung urban area with isolated patches of formal public open space found in the southern part of the Batlhaping-Ba-Ga Mothibi traditional authority.</p>	<p>When considering the urban environment, the importance of public open space and the ecological services it provides is highlighted. Access to public open space is also regarded as important to the residents of settlements in the 21st century. Areas zoned as public open space will be protected for both the social and ecological value thereof in the EMF process.</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
Agricultural potential		
<i>Land capability (SQ Report, table 5.26)</i>	Three land capability classes have been identified in the GTLM area, with virtually no arable lands. Approximately 61% of the area, primarily on the Ghaap Plateau in the western and central parts, is classified as non-arable lands with low to moderate grazing potential. The remaining 39% of the area, in the north-western and eastern parts of the GTLM area is classified as non-arable with moderate grazing potential. A very small portion is considered to be marginal potential arable land.	The dataset provide an indication of crop production potential and may be suitable for use in the study in conjunction with the crop field boundary data.
<i>Crop field boundaries (SQ Report, table 5.27)</i>	The crop production potential of the GTLM area is severely limited. Despite this limitation, some crop fields occur in the Harts River valley in the vicinity of Taung, as well as in the vicinity of Lykso. Virtually all the crop fields in the Taung River valley, as well as some north of the N14 in the vicinity of Lykso are irrigated by pivot irrigation. The remaining cropland in the vicinity of Lykso is being used for annual crop cultivation, while some cropland in the vicinity of Norlim and Mokagreng are used for subsistence farming. Some old crop fields can also be found in the north-western part of the GTLM area.	All land that is or has been cultivated in the past is considered to be high potential agricultural land , and should be regarded as sensitive to activities that might degrade them.
<i>Grazing capacity (SQ Report, table 5.28)</i>	Most of GTLM area is used for extensive livestock farming. The grazing capacity in approximately 71% of the area (central and western parts) on the Ghaap Plateau varies from 5-10 ha/LSU. The grazing capacity in the remaining approximately 29% of the area, primarily in the eastern parts, is lower than that (more than 10 ha/LSU). This is	The coarse scale of the dataset renders it unsuitable for further use in the study. However if combined with land cover data , fields with high grazing capacity could be mapped at a higher resolution which would assist in more accurately identifying areas of high potential agricultural land.

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
<i>Invasive alien plant species (SQ Report, table 5.29)</i>	<p>probably primarily a reflection of the vegetation types in the area, but could also be partially attributed to overgrazing in the areas under control of the traditional authorities.</p> <p>Alien invader plants (AIPs) is not considered as a serious threat in the GTLM area, due to low levels of alien plant invasions. Although alien invasive plants do occur in the area, largely around human settlements and disturbed areas, the cover of these species is less than 10% for the complete area, even along the rivers and water courses in the area, which normally has higher % invader plant cover.</p>	<p>The scale and accuracy of the dataset is questionable as an input layer for determining sensitivity and will subsequently not be used spatially. However, reference should be made to IAP invasion should be limited or only allowed after adequate environmental impact assessments has been conducted in order to ensure that the potential for IAP invasion is considered and mitigated.</p>
Solar potential		
<i>Solar energy potential (SQ Report, table 5.30)</i>	<p>The Greater Taung Local Municipality (GTLM) was included in one of the top PV solar development potential areas identified during the SEA process, confirming that the Taung and Reivilo areas have great potential to generate electricity from solar energy in the North-West Province. It is clear that large areas in the western parts and smaller areas in the eastern parts of the GTLM area possess very high potential for PV solar developments.</p>	<p>The solar development potential of the GTLM area could assist with economic development and small scale employment opportunities in the area. The solar potential could be harnessed through local economic development initiatives, while the community benefit requirements of the Department of Energy (DoE) Renewable Energy Independent Power Producers Programme (REIPPP) could also contribute towards community development and infrastructure provision and maintenance.</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
Socio-economic issues		
Socio-economic profile		
<i>Population density (SQ Report, table 6.1)</i>	<p>The biggest human populations in the GTLM area occur in the Taung River valley, along a central north-south axis in the area and to the east thereof. The biggest number of people are found in the Taung ward, with more than 20 000 people, while numerous other wards in the area have populations of 2001-20 000 people. In most of the wards to the west of the Harts River valley, the populations are less than 100 people per ward, except for Reivilo, Motsweding, Madipelesa, Shaleng and Mammutla.</p> <p>The wards with the highest population densities corresponds largely with those with the biggest populations. The densities in the wards in and to the east of the Harts River area mostly higher than 21 people per km², while the population densities in the areas to the west of the valley are mostly lower than 20 people per km².</p>	<p>Population size and density is an indicator of current and future development trends in an area as the majority of future urban development will most likely concentrate around already developed and highly populated areas. The potential impact of these areas on the natural environment due to solid waste generation and disposal, water use and pollution and in many cases, dependency on the surrounding environment for fuel sources, such as wood. These potential impacts and issues should be considered in the development of the EMF.</p>
<i>Levels of education (SQ Report, table 6.2)</i>	<p>More than 30% of the population in small parts of the north-eastern and eastern regions of the GTLM has a level of education of grade 12 or higher. 21-30% of the population in a small part of the north-eastern region and 11-20% of the population in the greater region of the GTLM has a level of education of grade 12 or higher. Less than 10% of the population in parts of the northern, eastern and southern regions of the GTLM has a level of education of grade 12 or higher.</p>	<p>The dataset is unlikely to have any direct implication for sensitivity but provides crucial information on the skills and knowledge present in the area, which could be important when considering possibilities for local economic development with a focus on local procurement.</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
<p><i>Employment levels (SQ Report, table 6.3)</i></p>	<p>More than 60% of the people in the southern to north-western regions of the GTLM are economically active, while 41-60% of the people in small parts of the eastern and south-eastern regions and only 21-40% of the people in the greater northern to southern regions of the GTLM are economically active. In a part of the southern region of the GTLM, less than 20% of the people are economically active.</p> <p>The largest contributing sector of employment in the GTLM is agriculture, forestry and fishing. This sector is closely followed by community social and personal services, as well as government services. Financial intermediation, insurance, real estate and business services is also regarded as a contributing sector of employment, after community social and personal services, as well as government services. Mining and quarrying and manufacturing follows financial intermediation, insurance, real estate and business services as contributing sectors of employment.</p>	<p>The dataset is unlikely to have any direct implication for sensitivity but provides information crucial to understanding the employment context of the area, which in turn provides invaluable information with regard to the economic climate and possible development trends/potential in the area.</p>
<p><i>Gross geographic value (SQ Report, table 6.4)</i></p>	<p>There are only 7 wards in the GTLM area with a total gross geographic value (GVA) of more than R 50 000 000. These include the wards of Taung and Reivilo with the highest economic activity and a GVA of more than R 250 000 000, the ward of Pudimoe with a GVA of R101 000 000 – R250 000 000, and four other wards with a GVA of R 51 000 000 – R 100 000 000. The GVA of a number of wards are R 11 000 000 – R 50 000 000, while there is very little economic activity in the majority of wards, with a GVA of less than R 10 000 000.</p>	<p>Gross Geographic Value is an indicator of the economic activity in the GTLM area and related to employee compensation in the area i.e. the available spending power. Disposable income has a direct effect on economic development, especially with regard to economic activities dependent on the local population for success. Although there is not a direct link to environmental sensitivity of the area, this information provides valuable insights into the socio-economic context</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
		of the area, which could translate into adverse environmental impacts.
<i>Household income (SQ Report, table 6.5)</i>	More than 20% of the people living in a small part of the eastern region of the GTLM are living below the minimum living level (MLL). 15-20% of the people living in the greater part of the GTLM are living below the MLL, while 10-15% of the people living in a bigger part of the eastern region of this municipality are also living below this level. Less than 10% of the people also living in a small part of the eastern region of this municipality are living below the MLL.	Household income is an indicator of disposable income which has a direct effect on economic development especially where economic activities dependent on the local population for success is concerned. It is also an indicator of poverty which might have a very real effect on the physical environment .
Infrastructure development		
<i>Dwelling unit density (SQ Report, table 6.6)</i>	The greater part of the GTLM area is characterised by a low dwelling unit density. Medium to high dwelling unit densities are only found in various towns and villages. These primarily occur in the land under control of the three traditional authorities in the central and eastern parts of the GTLM area. Most of the villages are located in the Harts River valley or to the east thereof, with only a limited number on the Ghaap Plateau, west of the valley. The only town Outside the land under control of the traditional authorities it is only the town of Reivilo that has a medium to high dwelling unit density.	Dwelling unit density is an indicator of possible development pressures and cumulative effects in the area. It further provides insight on possible development trends that could be expected.
<i>Basic services (SQ Report, table 6.7)</i>	More than 80% of the households in the eastern to southern region of the GTLM have access to municipal water, while approximately 61-80% of the households in the central region of this municipality also have access to this resource. In contrast, less than 50% of the households from the south-western to north-western regions of the GTLM	The status and condition of basic services have important implications for environmental sensitivity. The status and condition of basic services should be considered in terms of its possible effect on the environment and its subsequent relevance to sensitivity .

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
	<p>have access to municipal water.</p> <p>More than 10% of the population in the south-western to north-western regions of the GTLM has access to flush toilets, while approximately 6-10% of the population in the south eastern region of this municipality also has access to this resource. Approximately 3-5% of the population in the central and parts of the eastern, south eastern and southern regions of the GTLM have access to flush toilets. In contrast, less than 2% of the population in parts of the northern, eastern, south eastern and southern regions of this municipality has access to this resource.</p> <p>More than 80% of population from the northeaster to southern regions of the GTLM has access to electricity for lighting, while approximately 76-80% of the population in the south eastern region of this municipality also has access to this resource. In contrast, less than 70% of the population in the south-western to north-western regions of the GTLM has access to electricity for lighting.</p> <p>More than 10% of the population from the southern to north-western regions of the GTLM has access to waste removal services, while approximately 3-5% of the population in parts of the eastern region of this municipality also has access to this resource. In contrast, less than 2% of the population from the northern to southern regions of the GTLM has access to waste removal services.</p>	
<i>Eskom electricity network (SQ Report, table 6.8)</i>	<p>The GTLM is relatively well serviced in terms of electricity distribution (refer to section 6.1 for the discussion on basic service). In terms of high voltage infrastructure there is</p>	<p>The distribution of available infrastructure serves as an indicator of where possible development might transpire. Most residential and commercial</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
	<p>room for further development of infrastructure in the southernmost part of the municipality. Given the high potential for the development of PV solar farms in the area, the expansion of the 132kV network might prove beneficial.</p>	<p>developments and all industrial developments are dependent on Eskom for energy. Therefore, the electricity distribution network dataset provides an indication of where future development pressures might be expected.</p>
<p><i>Roads and railways (SQ Report, table 6.9)</i></p>	<p>Most areas within the GTLM are accessible by roads, although there are some roads that are not in very good condition. Some roads are still gravel roads or only partially tarred and many of the roads connecting villages are regarded as 'tracks' which is the least formal form of road. Most of the main routes are in a decent condition although potholes are present in some sections.</p> <p>The railway network within the area is not well developed although a section of the Cape Town/ Gaborone network passes through the GTLM.</p>	<p>Roads and railways can also assist in identifying areas that might be likely to develop in the near future. Accessibility in terms of main roads might for example determine where future industrial development will transpire or where a PV solar plant will be developed.</p>
<p><i>Landfill sites (SQ Report, table 6.10)</i></p>	<p>Four official landfill sites were identified for the GTLM. According to the Dr. Ruth S Mompoti District Municipality (RSMDM) IDP the Taung CBD, Pudumong and Reivilo are the only areas currently being serviced in terms of refuse removal. This statement from the IDP coincides with the spatial distribution of the landfill sites in the area and it is clear that the construction of more landfill sites is a prerequisite for the expansion of service delivery to other villages.</p>	<p>Landfill sites, if not on standard and not well managed, can have a negative effect on the environment. The development of new landfill sites will have to be considered in the next ten years in the GTLM and the localities of these possible sites will have to be considered when management zones are determined in the latter stages of the GTLM EMF project.</p>

Environmental component <i>(Table references refers to SQ report)</i>	<i>Status quo</i>	Implications for sensitivity
Land use		
<i>Land use (SQ Report, table 6.11)</i>	Land uses associated with urban development, such as residential, business, municipal, educational, community and recreational, as well as public open space land uses, are concentrated towards the east of the GTLM and the three traditional authorities. In the western section of the GTLM it is only Reivilo that offers land uses associated with urban development, with the remainder of the area being associated with farm portions used for mainly grazing and cultivation and limited mining areas. There is very little industrial and business land uses in the GTLM area, while in Taung, educational land use (Taung Agricultural College) is important.	Land use maps often reveal land use patterns , which if interpreted correctly, could be related to possible pressures on the environment .
<i>Incompatible land use (SQ Report, table 6.12)</i>	Many areas in the GTLM area that are currently used for urban related purposes – such as residential, commercial and institutional uses – or zoned for such use in future are located in environmentally sensitive areas, such as on dolomitic areas, within the 100 year flood line, in close proximity to wetlands and in close proximity to possible red data species habitat. In the Taung area there are many residential stands that are within the flood risk area, while in the western section possible dolomitic areas are a bigger concern.	It is important to understand the compatibility between different land uses . Effects such as noise and excessive light pollution that different land uses might have on one another should be considered.
<i>Land cover (SQ Report, table 6.13)</i>	Currently more than 400,000 ha of the GTLM is regarded as being in a near natural state. This is a large proportion of the total municipality, compared to other municipalities in the province. A very small proportion of the GTLM area is	Land cover indicates where natural habitat is still intact and will be crucial in the determination of the sensitivity of these areas for different activities.

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
	used for cultivation, while the effects of overgrazing are visible in the communal areas. Approximately 27,000 ha of land is associated with urban development and only 700 ha with mining.	
Heritage		
<i>Taung Skull World Heritage site (SQ Report, table 6.14)</i>	<p>The Taung Skull site is both a National Heritage site and a World Heritage site. It was included in the Cradle of Humankind World Heritage Site listing as a serial listing in 1999. The site gained global recognition after the 2-million-years old skull of a juvenile hominid, described as the type specimen of <i>Australopithecus africanus</i>, was discovered there in December 1924.</p> <p>The site therefore throws light on to the origins and then the evolution of humankind, through the hominisation process. Together with the Fossil Hominid Sites of Sterkfontein, Swartkrans, Kromdraai and environs, as well as Makapan Valley, the Taung Skull site comprise five separate components situated in different provinces. Collectively these components contain the necessary evidence of sites where abundant scientific information on the evolution of modern humans over the past 3.5 million years was uncovered.</p>	<p>The components of the Fossil Hominid Sites are currently protected as World and National Heritage sites and needs to be considered in the development of the EMF. Each site has a site management plan, as well as monitoring and evaluation programme. In terms of applicable legislation, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site, without a permit issued by the responsible heritage resources authority. Furthermore, all developments are subjected to environmental impact assessments and mining or prospecting is completely prohibited.</p>
<i>Palaeontological sensitivity (SQ Report, table 6.15)</i>	<p>The palaeontological sensitivity of approximately 50% of the GTLM area are either high or very high. These include most areas in the south-western part of the GTLM, largely linked to the Ghaap Plateau, west of the Harts River valley, as well as some areas east of the Harts valley in the</p>	<p>Fossil sensitivity is an important element of the proactive management of palaeontological and geological heritage resources and guides and assists developers, heritage officers and practitioners in screening palaeontologically</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
	southern part of the municipality. The palaeontological sensitivity of large parts of the GTLM east of the Harts River valley, as well as the northern parts of the GTLM are either medium or low.	sensitive areas. Because fossils are very seldom visible to most people, it is important that the sensitivity should be considered in the identification of environmental sensitivity zones and be considered in the development of the SDF and Land Use Scheme. However, the coarse scale of the dataset renders it unsuitable for further use in the development of the EMF.
<i>Other heritage sites (SQ Report, table 6.16)</i>	The GTLM boast a number of heritage resources that should be considered when determining sensitivity. The resources are scattered throughout the GTLM and include the Mmabana Cultural Centre, Dinkwaneng (San rock art near the village of Mantestat), Thomeng Water Falls (south of the Taung Skull site) and Blue Pools (north of the Taung Skull site). These sites should be investigated in detail to ensure that heritage resources are thoroughly understood and protected.	Heritage sites are sensitive to any activity that might threaten to damage, destroy, deface, alter, excavate, alter, subdivide or remove it from its original position. Significance plays a central role in assessing heritage and is usually one of the most contentious issues when registering a new site. The degree of vulnerability of a site (resource) determines the policies and management practices for the site (resource) to ensure that the significance will be retained.
Mining		
<i>Mineral points (SQ Report, table 6.17)</i>	A number of minerals can be found in the GTLM area. Lead is most prominent, while manganese, zinc, alluvial diamonds and limestone also occur. Four localities where lead can be found occur in the central and north-western part of the GTLM area on the Ghaap Plateau. Zinc can be found at a single location north-east of Reivilo, while	Mining is probably the human activity with the most detrimental environment effects, but the mining industry is a very important driver in the South African economy. Areas with mining potential should be regarded as potential conflict areas , as well as drivers of development in the

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
	<p>manganese can be found at a single point near Lykso. Alluvial diamonds can be found at two localities upstream and downstream of the Taung dam along the Harts River, while limestone can be found at two localities in the Harts River valley, along the edge of the Ghaap Plateau in the central part of the GTLM area, one of which is at the Taung Heritage Skull World Heritage site.</p>	<p>area, especially as some of the mineral resources occur in cultural and environmental sensitive areas.</p>
<p><i>Mining authorisations (SQ Report, table 6.18)</i></p>	<p>Various prospecting rights had been granted throughout various parts of the GTLM, especially in the north-eastern, southern and north-western parts of the GTLM area. Although no mining permits were granted for small mining and quarrying activities, 2 mining rights for long-term, large scale mining operations were granted in the western part of the GTLM area, north-east and north-west of Reivilo respectively. At the Pering mine approximately 20 kilometre north-east of Reivilo, BHP Billiton had been mining lead and zinc deposit from 1984 to 2002.</p>	<p>Since mining in South Africa is the backbone of the country's economy, opportunities for growth in this sector will continuously be explored. Therefore, areas with mining potential will have the potential of being developed and should be considered conflict areas in the context of the GTLM EMF.</p>
<p><i>SANBI mining & biodiversity guidelines (SQ Report, table 6.19)</i></p>	<p>Large clusters of areas of high biodiversity importance and high risk for mining occurs throughout the GTLM, especially in the north-western and south-western parts of the GTLM area, while isolated clusters of Category B areas also occur in the southern and south-eastern parts. Areas of high biodiversity importance with a high risk for mining (Category C) occur along the Harts River in the municipality, as well as some of the hilly areas in the north-eastern and central parts of the GTLM area. Virtually all parts of the GTLM area west of the Harts River on the Ghaap Plateau that is not of highest biodiversity importance, is of moderate biodiversity</p>	<p>South Africa's mineral endowment implies that mining and the environment will continue to interact and need to walk this path together to achieve prosperity and sustainability. Without the integrity of the natural systems, there will be no sustained long-term economic growth or life. In the EMF information on biodiversity sensitivity and risk of mining must be utilised to ensure that mineral resource development takes place in a way that supports an optimal growth path for GTLM.</p>

Environmental component <i>(Table references refers to SQ report)</i>	Status quo	Implications for sensitivity
	<p>important with a moderate risk for mining (Category D). A few isolated patches of such areas are also found in the eastern and southern part of the GTLM area.</p> <p>Although not indicated on the map, the Taung Skull World Heritage site is legally protected and mining prohibited.</p>	
Tourism		
<i>Tourism opportunities (SQ Report, table 6.20)</i>	<p>A number of minerals can be found in the GTLM area. Lead is most prominent, while manganese, zinc, alluvial diamonds and limestone also occur. Four localities where lead can be found occur in the central and north-western part of the GTLM area on the Ghaap Plateau. Zinc can be found at a single location north-east of Reivilo, while manganese can be found at a single point near Lykso. Alluvial diamonds can be found at two localities upstream and downstream of the Taung dam along the Harts River, while limestone can be found at two localities in the Harts River valley, along the edge of the Ghaap Plateau in the central part of the GTLM area, one of which is at the Taung Heritage Skull World Heritage site.</p>	<p>Mining is probably the human activity with the most detrimental environment effects, but the mining industry is a very important driver in the South African economy. Areas with mining potential should be regarded as potential conflict areas, as well as drivers of development in the area, especially as some of the mineral resources occur in cultural and environmental sensitive areas.</p>

6 DESIRED STATE OF THE GREATER TAUNG LOCAL MUNICIPALITY ENVIRONMENT (PHASE 3)

The analysis and evaluation of the base line information, issues raised through the public participation process, and authority requirements and policies identify and provide the basis for establishing environmental priorities, related to critical environmental issues, in the EMF development process. These environmental priorities must be used to develop a vision and strategic objectives for the Desired State of the Environment, as well as management guidelines for the EMF (South Africa, 2012b).

The process of identifying the desired state of the GTLM comprised several steps (Figure 6), which could be considered sub-phases of phase 3 of the project. These steps systematically build on the *status quo* analysis and include a review of policy drivers and a stakeholder engagement process. The results of the *status quo* reporting phase, as captured in the *status quo* report was used to facilitate a public participation process, where interested and affected parties were provided the opportunity to contribute in defining the Desired State of the Environment in terms of a vision, mission and guiding principles, as well as six primary and six secondary strategic objectives for the management of the GTLM.

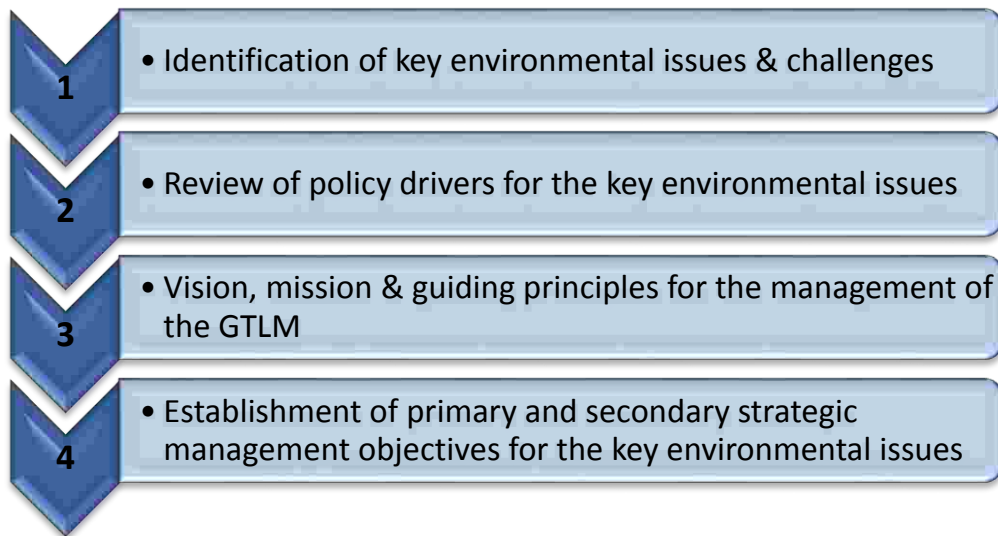


Figure 6. Process of determining the Desired State of the Environment

6.1 Purpose of the Desired State of the Environment phase

The purpose of this phase is to identify the strategic significant issues, identify environmental opportunities and constraints, and to clearly describe the desired future state of the environment. It details the identified conflicts between land-use planning, biodiversity issues and agriculture and identifies the strategies needed for dealing with them.

The deliverables from this phase is twofold in nature and include

- a detailed development vision for the area, as well as
- a comprehensive set of development objectives related to the desired future state relating to the priority environmental issues within the area.

6.2 Key Issues, opportunities and threats

This section summarises the key environmental issues, as well as opportunities and threats in the GTLM, as identified from the findings of the *status quo* analysis and the inputs received from stakeholders during the public participation workshops. The discussion does not present these issues in any order of importance, but merely serves to highlight some critical issues, opportunities and threats.

The key issues, opportunities and threats are classified under three main headings i.e. Legal and Institutional Framework, Natural Environment and Socio-economic Environment.

6.2.1 Issues and challenges relating to the legal and institutional framework

The legal and institutional context for the GTLM is complex and can be divided into the legal and institutional frameworks for the GTLM and the TSWHS; related strategic planning frameworks and the various mandates for project level authorizations. The main conclusions on each of these components are summarised in Table 4.

It is evident that the effective management of the GTLM will require a clear understanding of its legal status and mandate, combined with effective alignment thereof with the strategic planning frameworks for the area, as well as effective co-operative governance between different stakeholders, including institutions at all three spheres of government, as well as the Management Authority, with regard to strategic planning, land use management and project level authorizations.

6.2.2 Issues and challenges relating to aspects of the natural environment

The *status quo* analysis describes the natural environment in relation to geology and topography, biodiversity, water resources (hydrology), air quality and agricultural potential. The main conclusions on each of these environmental components are summarised in Table 5.

Threats to biodiversity include human-induced or mediated activities that result in the loss (transformation) or reduction (degradation) of biodiversity pattern and/or processes, either directly or indirectly. These may manifest as changes in biodiversity structure (e.g. landscape fragmentation, bush encroachment), composition (e.g. species loss), or as changes in ecosystem functioning (e.g. altered hydrology, reduced net primary productivity) (Desmet *et. al.* 2009).

Direct causes of biodiversity loss relate predominantly to various forms of land use that either compete directly with biodiversity (urban development, agriculture and mining), or utilise natural resource at unsustainable levels (overgrazing, water abstraction) and include agriculture, mining and urbanisation. Indirect causes are usually systemic in nature and usually have a socio-economic or political origin and include institutional and enabling environment issues relating to conservation management and land-use and land-use change management. The direct impacts on biodiversity due to competing land-uses result in loss of habitat and landscape fragmentation, as well as degradation of the natural environment, but their impacts could be significantly mitigated if the institutions responsible for environmental and land-use planning and management operated and applied the law effectively (Desmet *et. al.* 2009).

Other potential threats to the natural environment include the following:

- Destruction/degradation of areas with high agricultural potential, i.e. cropland by infrastructure development;
- Destruction/degradation of areas with moderate agricultural potential, i. e. grazing land, especially by poor grazing practices and veld fires;
- Destruction/degradation of areas of ecological significance;
- The polluted state of the Dry Harts and Harts rivers that diminishes the natural value of the area; and
- Overexploitation of the limited groundwater resources.

6.2.3 Issues and challenges relating to aspects of the socio-economic environment

The *status quo* analysis described the socio-economic environment in relation to socio-economic profile, land use, heritage resources, mining, tourism and physical (services) infrastructure. The main conclusions on each of these socio-economic components are summarised in Table 6.

Potential threats to the socio-economic environment include the following:

- Illegal developments, especially on high potential agricultural land;
- Poor condition of roads and other municipal services infrastructure;
- Lack of municipal services.

The most important socio-economic opportunities relate to the multi-functional use of the land in the GTLM – where various complementary land-uses, such as farming and the development of the solar potential of the GTLM, which will not threaten the sustainability of local communities, could facilitate socio-economic development. Such land uses could also facilitate the development of the necessary infrastructure required and may also serve to protect the natural environment.

Table 4: Issues and challenges relating to the legal and institutional framework

Findings of the <i>Status Quo</i> Analysis	Inputs from Stakeholders/Interested and Affected Parties
Legal and Institutional aspects	
<p>In terms of the legal status of the GTLM EMF, a range of international and national legislation is applicable, including the National Environmental Management Act 107 of 1998; 2010 EMF Regulations; National Environmental Management Act 107 of 1998, National Water Act 36 of 1998, National Environmental Management: Waste Act 59 of 2008; National Environmental Management: Biodiversity Act of 10 2004; World Heritage Convention 1972, read along with the Implementation Guidelines for the World Heritage Convention; World Heritage Convention Act 49 of 1999; National Environmental Management Protected Areas Act 57 of 2003; Conservation of Agricultural Resources Act 43 of 1983; Subdivision of Agricultural Land Act 70 of 1970 and the Mineral and Petroleum Resources Development Act 28 of 2002.</p> <p>The strategic natural resource management and development planning perspectives are set out in various strategic documents, including the National Water Resource Strategy 2, July 2012; Vaal River System: Large Bulk Water Supply Reconciliation Strategy, Groundwater Assessment: Dolomite Aquifers, December 2006; Vaal River System: Large Bulk Water Supply Reconciliation Strategy, March 2009; Integrated Water Quality Management Plan for the Vaal River System: Task 2: Water Quality Status Assessment of the Vaal River System, September 2009; Vaal River System: Feasibility Study for utilization of Taung Dam water - Water Quality Status: Overview and Modelling, July 2008; National Wetlands Inventory, 2006; National Freshwater Priority Areas, 2011; National Spatial Biodiversity Assessment, 2006; National Biodiversity Assessment, 2011; North West Province Critical Biodiversity Assessment, 2008; North West Province Biodiversity Conservation Assessment, 2009; National list of Threatened and Terrestrial Ecosystems, 2011; National Protected Areas Expansion Strategy, 2010,</p>	<p>The National Environmental Management Protected Areas Act 57 of 2003 (NEMPAA) provides for the establishment of a management authority (MA) who will be responsible for the overarching management of the site, as well as the drafting of a management plan, which must be approved by the Minister of Environmental Affairs.</p> <p>The MA must manage the area exclusively for the purpose for which it was declared; and in accordance with the management plan for the area and all applicable legislation.</p> <p>The object of the management plan is to ensure the protection, conservation and management of the protected area concerned in a manner which is consistent with the objectives of the NEMPAA and for the purpose it was declared.</p> <p>The MEC responsible for Environment and Conservation Management in the North-West Province, has been declared as the Management Authority responsible for the Taung Skull Fossil World Heritage Site for a period of 5 years on 18 July 2014.</p>

Findings of the <i>Status Quo</i> Analysis	Inputs from Stakeholders/Interested and Affected Parties
<p>North West Provincial Air Quality Management Plan, 2009 etc.</p> <p>Strategic land use management documents include Spatial Development Frameworks for the North-West province, as well as the Dr. Ruth Segomotsi Mompoti district municipality and the Greater Taung Local Municipality.</p> <p>Finally the range of project level authorisation processes that are applicable to developments in the GTLM include environmental authorisations in terms of the National Environmental Management Act 107 of 1998; water use authorisations in terms of the National Water Act 36 of 1998; waste management licenses in terms of the National Environmental Management: Waste Act 59 of 2008; atmospheric emission licenses in terms of the National Environmental Management: Air Quality Act 59 of 2008; approval/permission for the subdivision of agricultural land in terms of the Subdivision of Agricultural Lands Act 70 of 1970 and the Division of Land Ordinance 20 of 1986; heritage resource authorisation in terms of the National Heritage Resources Act 25 of 1999 and mining related licenses/permits issued in terms of the Mineral and Petroleum Resources Development Act 28 of 2002.</p> <p>It also includes land use management related authorisations such as land development application tribunal orders in terms of the Development Facilitation Act 67 of 1995; business or public and/or private Resorts permits in terms of the Physical Planning Act 88 of 1967, as well as recommendations from the Townships Board in terms of the Town Planning and Township Ordinance 15 of 1986; permissions/approvals in terms of the Advertising on Roads and Ribbon Development Act 21 of 1940; certificates of cancellation for township establishment on agricultural smallholdings in terms of the Agricultural Holdings Act 22 of 1919, as well as recommendation from the Townships Board in terms of the Town Planning and Township Ordinance 15 of 1986; approvals for removal of restrictive conditions from a Deed of Transfer in terms of the Removal of Restriction Act 84 of 1967; approvals for township establishment in terms of the Less Formal Township Establishment Act 112 of 1991 and the Regulation relating to Township</p>	

Findings of the <i>Status Quo</i> Analysis	Inputs from Stakeholders/Interested and Affected Parties
<p>Establishment and Land Use of 1986; municipal approvals for township establishment in terms of the Township Ordinance 15 of 1986 or the Cape of Good Hope Ordinance 15 of 1985; as well as municipal rezoning or subdivision of land application approvals issued in terms of applicable town planning schemes, regulations and by-laws.</p>	

Table 5: Issues and challenges relating to aspects of the natural environment

Findings of the Status Quo Analysis	Inputs from Stakeholders/Interested and Affected Parties
Hydrology and water resources	
<p>Water is a key environmental component in the arid environment of the GTLM. The area is endowed with various water resources, including valuable underground dolomitic aquifers and associated fountains. Large number of people rely on groundwater as their only source of water.</p> <p>Surface water resources are scarce and primarily restricted to the Taung and Spitskop dams, while surface water accumulation in numerous pans and periodic river flows also occur after good rainfall events in the area. The numerous pans and associated wetlands in the area are also important from a biodiversity conservation perspective.</p> <p>Irrigation water is an important contributor to the unlocking of the agricultural potential of the high value cropland.</p> <p>In the past, the GTLM has been subjected to severe flooding, especially in the Harts River Valley. It is apparent that the Taung, Mokagreng, Norlim and Motsweding villages are at risk of being affected by floods.</p>	<p>Communities recognise the value of ground- and surface water resources, such as springs and boreholes. Availability of livestock watering infrastructure to provide water to livestock seems to be a concern in some areas.</p>

Findings of the Status Quo Analysis	Inputs from Stakeholders/Interested and Affected Parties
Agricultural potential	
<p>GTLM only has limited areas with high potential agricultural cropland, that is unevenly distributed spatially. The potential of the majority of these areas are unlocked through irrigation practices.</p> <p>Most of GTLM area is used for extensive livestock farming. Grazing land seems to be in a fair condition, but overgrazing seems to be a common problem on communal land.</p>	<p>High potential agricultural and grazing land is being given to people by the chiefs to build houses on. Furthermore, individuals who have the ownership to high potential cropland do not use the land themselves, but lease it to other people.</p> <p>There is a need to identify areas that is considered degraded land and also include land rehabilitation in the study.</p>
Topography and geology	
<p>The eastern edge of the Ghaap Plateau, bordering onto the Dry Harts and Harts River valleys forms unique topographical and geological tufa features. These do not only include the TSWHS, but are also home to locally unique biodiversity and also has cultural and spiritual value to local communities.</p>	<p>The cliffs and hills on the western side of the Dry Harts and Harts River valleys has many springs and unique plant communities that need to be conserved. It also houses unique areas such as Thumeng falls and the Blue Pools that are used by local communities for religious ceremonies.</p>
Biodiversity and conservation	
<p>Very little evidence could be found to support the theory of a unique Griqualand centre of endemism on the Ghaap Plateau. Very little data on biodiversity richness exist for the area. A number of areas, where the biodiversity is unique, fairly undisturbed and could potentially be protected for tourism purposes has been identified.</p>	<p>The natural scenery in specific areas provides opportunities for biodiversity protection. Where such areas have not been disturbed by human activities, opportunities exist for wildlife-based tourism developments.</p>
Air quality	
<p>The GTLM does not experience significantly high levels of pollution from major polluters such as industrial activities and mining related processes. The major sources of air pollution are unpaved roads, bare areas and agricultural lands,</p>	

Findings of the Status Quo Analysis	Inputs from Stakeholders/Interested and Affected Parties
<p>causing dust pollution.</p> <p>The impacts of these sources may further be more distinct during specific times of the year, for example the windy season when more dust is lifted into the atmosphere, causing higher levels of particulate pollution, while smog might be more visible in winter times, due to the higher levels of fuel burning in populated areas.</p>	
Solar potential	
<p>Large areas in the western parts and smaller areas in the eastern parts of the GTLM area possess very high potential for PV solar developments.</p>	<p>Lenganeng village has strong sun or high radiation and could be a potential site for a solar power plant, while there are plans to develop a solar power plant between the Mogapela A & B villages.</p>

Table 6: Issues and challenges relating to aspects of the socio-economic environment

Findings of the Status Quo Analysis	Inputs from Stakeholders/Interested and Affected Parties
Socio-economic environment	
Land use	
<p>Land uses associated with urban development are concentrated towards the east of the GTLM and the three traditional authorities. In the western section of the GTLM it is only Reivilo that offers land uses associated with urban development, with the remainder of the area being associated with farm portions used for mainly grazing and cultivation and limited mining areas.</p> <p>Many areas in the GTLM area that are currently used for urban related purposes or zoned for such use in future are located in environmentally sensitive areas, such as on dolomitic areas, within the 100 year flood line, in close proximity to wetlands and in close proximity to possible red data species habitat.</p>	<p>High potential agricultural and grazing land is being given to people by the chiefs to build houses on.</p>

Findings of the Status Quo Analysis	Inputs from Stakeholders/Interested and Affected Parties
Socio-economic development	
<p>More than 60% of the population in the GTLM has a qualification lower than grade 12, approximately 40% is economically inactive, while approximately 15% live below the MML.</p>	
Infrastructure development	
<p>In some areas of the GTLM, more than 80% of the households have access to municipal water and electricity. Significantly lower numbers of people, however, have access to flush toilets and waste removal services. The status and condition of basic services have important implications for environmental sensitivity. The status and condition of basic services should be considered in terms of its possible effect on the environment and its subsequent relevance to sensitivity.</p>	
Mining	
<p>A number of minerals can be found in the GTLM area, including lead, manganese, zinc, alluvial diamonds and limestone. Various prospecting rights had been granted throughout various parts of the GTLM, while two mining rights for long-term, large scale mining operations has been granted in the western part of the GTLM area, in the vicinity of Reivilo.</p> <p>Since mining in South Africa is the backbone of the country's economy, opportunities for growth in this sector will continuously be explored. Therefore, areas with mining potential will have the potential of being developed and should be considered conflict areas in the context of the GTLM EMF.</p>	<p>A number of villages have mineral resources that could be mined, including Kudutlou, Kukutleng, Mathanthanyaneng and Motsema.</p> <p>Furthermore, there are alluvial diamonds in the vicinity of the Taung dam and claims that Modimong village stands on top of a kimberlite pipe. There is also an old marble mine close to the N18 north of Taung.</p> <p>Land owners in the vicinity of the Pering mine are concerned about the potential impact of the mine on groundwater availability and quality.</p>
Heritage resources	
<p>The Taung Skull site is both a National Heritage site and a World Heritage site. In terms of palaeontological sensitivity, approximately 50% of the GTLM area are either highly or very highly sensitive. These include most areas in the south-</p>	<p>Both the Taung Skull World Heritage site (Norlim) and the Thumeng heritage site occur in the area, both are tourist attractions.</p>

Findings of the Status Quo Analysis	Inputs from Stakeholders/Interested and Affected Parties
<p>western part of the GTLM, largely linked to the Ghaap Plateau, west of the Harts River valley, as well as some areas east of the Harts valley in the southern part of the municipality. Furthermore, the GTLM boast a number of local heritage resources that should be considered when determining sensitivity.</p>	<p>Possible other heritage sites in the GTLM area include a monument of Goshi, Small Haven close to Thomeng, a footprint in Matlaku and a cave identified as cave for witches at Kolong.</p>
<p>Tourism</p>	
<p>The GTLM SDF links tourism directly to three specific cultural and natural heritage sites, i.e. the Taung Skull World Heritage Site; Mmabana Cultural Centre and Dinkwaneng (San rock art near the village of Manthestat). It also identifies two areas that can be considered for more formal protected areas (nature reserves); one that includes the Taung Skull / Blue Pools site and the Thomeng Water Falls and the other that includes the Taung Dam, together with the Spitskop Dam. The GTLM 2012/17 IDP identifies a range of projects that could be implemented to stimulate, most of them related to the natural, cultural and heritage sites identified above.</p>	<p>A number of villages have beautiful natural areas that could be utilised for wildlife protection and tourism facilities. These include Tlapeng, Graspan and Pitsong. There are precious underground rocks, beautiful weathered rocks and river at Buxton, which is also a favourite tourist attraction. The beautiful natural surroundings of Kokonyana village close to the Taung dam can be exploited for tourist facilities.</p>

6.3 Vision, mission and guiding principles for the GTLM

6.3.1 Vision

Because the GTLM IDP 2012-2017 vision (GTLM, 2011) does not refer to environmental matters, it has been modified in line with the NDP 2030 Vision for Environmental Sustainability and Resilience, as documented in the MTSF (South Africa, 2014) and formulated as:

A prosperous community that is socially, culturally, economically and environmentally sustainable and climate change resilient.

6.3.2 Mission

The mission for the GTLM, as documented in the GTLM IDP 2012-2017 (GTLM, 2011) is:

Initiating and promoting sustainable socio-economic growth that is accessible to development through agriculture, heritage & mining (GTLM, 2011).

6.3.3 Guiding Principles for the EMF

The EMF is guided by the principles for sustainable development, as captured in the NEMA, as well as indirectly by the general development principles, as captured in the SPLUMA, including the principles of spatial justice, spatial sustainability, spatial resilience, efficiency and good administration.

6.4 Strategic objectives for the Desired State of the Environment

Strategic objectives for the GTLM were established for all the key natural and socio-economic environmental issues (Table 7). This was done through the consideration of the requirements of the NDP 2030 Vision for Environmental Sustainability and Resilience, as documented in the MTSF, NWPDP Objectives for Environmental Sustainability, NWP AQMP, World Heritage Convention, objectives of relevant legislation, policies and strategies of national and provincial spheres of government, as well as stakeholder input.

Table 7: Strategic objectives for key natural and socio-economic environmental issues

Significant environmental issue	Strategic Objective
Primary strategic objectives	
Hydrology and water resource management	To manage and utilise the surface and groundwater resources in the GTLM for the benefit of all recognised water users and beneficial water uses, through good planning, decision-making and management, as well as water conservation, in order to assist in

Significant environmental issue	Strategic Objective
	securing ecologically sustainable development, while also promoting justifiable social and economic development.
Land use	To allow land owners and users in the GTLM the continuation of their existing rights relating to the sustainable and efficient lawful use of land, while redressing the imbalances of the past and ensuring that there is equity in the application of spatial development planning and land use management systems, while responding to climate change through appropriate adaptation and mitigation arrangements.
Agricultural development	To promote the long term sustainable use and conservation of natural agricultural resources, including grazing land, and the protection of high potential cropland and its productive use in the GTLM, to ensure national and household food safety and security and profitable agricultural economic output.
Socio-economic development	To facilitate sustainable socio-economic growth in the GTLM, through active community participation, enhanced governance systems and capacity, as well as improved co-operation between all spheres of government, in order to improve the lives of all citizens and progressively meet their basic social and economic needs and build just, sustainable communities.
Physical infrastructure and built structures	To promote the development and maintenance of adequate roads, storm water, water and sanitation, electricity and solid waste management infrastructure in the GTLM, to ensure the equitable provision of effective, efficient and affordable services and build sustainable communities.
Mining	To promote new mining activities in the GTLM that stimulate economic development and does not threaten the sustainability of local communities.
Secondary strategic objectives	
Topography & geology	To protect and conserve the unique topographical and geological tufa features on the eastern edge of the Ghaap Plateau, with its associated biodiversity, cultural and heritage values from urbanisation and development actions that would destroy these features.

Significant environmental issue	Strategic Objective
Biodiversity and conservation	To conserve and sustain terrestrial and aquatic ecosystems in the GTLM, including vulnerable and unique ecological communities, as well as rare indigenous plant and animal species, through good planning, decision-making and management, as well as wise and efficient use of natural resources, to ensure sustainable and equitable benefits to the people of Taung, now and in the future.
Heritage Resources	To conserve and manage a full range of the cultural heritage of the GTLM, especially the TSWHS and the abundant fossils, through good planning, decision-making and management, to ensure sustainable and equitable benefits to the people of Taung, now and in the future.
Air quality	To reduce the negative impact of poor air quality as a result of emissions from fossil fuel use in residential applications, industrial sources and transport on human health and the environment through good planning, decision-making and management that considers the impacts of all sources of air pollution on surrounding areas.
Tourism	To promote the optimal development and utilisation of the tourism potential of the GTLM, especially the TSWHS, whilst not compromising the outstanding universal value thereof.
Solar energy potential	Promote the development of renewable energy generation facilities that will stimulate economic development and harness the solar potential and existing electricity transmission infrastructure in the GTLM area.

7 ENVIRONMENTAL SENSITIVITY MAPPING AND DELINEATING ENVIRONMENTAL MANAGEMENT ZONES (PHASES 4 – 7)

An EMF should, amongst others, indicate specific environmental attributes and environmental management priorities in the area that may be sensitive to certain types of activities (South Africa, 2010). This requirement is realized through the mapping of environmental sensitivities, the spatial desired state of the environment and the delineation of environmental management zones.

The process followed to develop the EMF, consisting of a spatial DSoE dataset, an environmental management zones dataset, a decision support matrix with accompanying guidelines (SEMP) and a spatial screening tool (is summarised in **Figure 7**. Also refer to **Figure 4**.

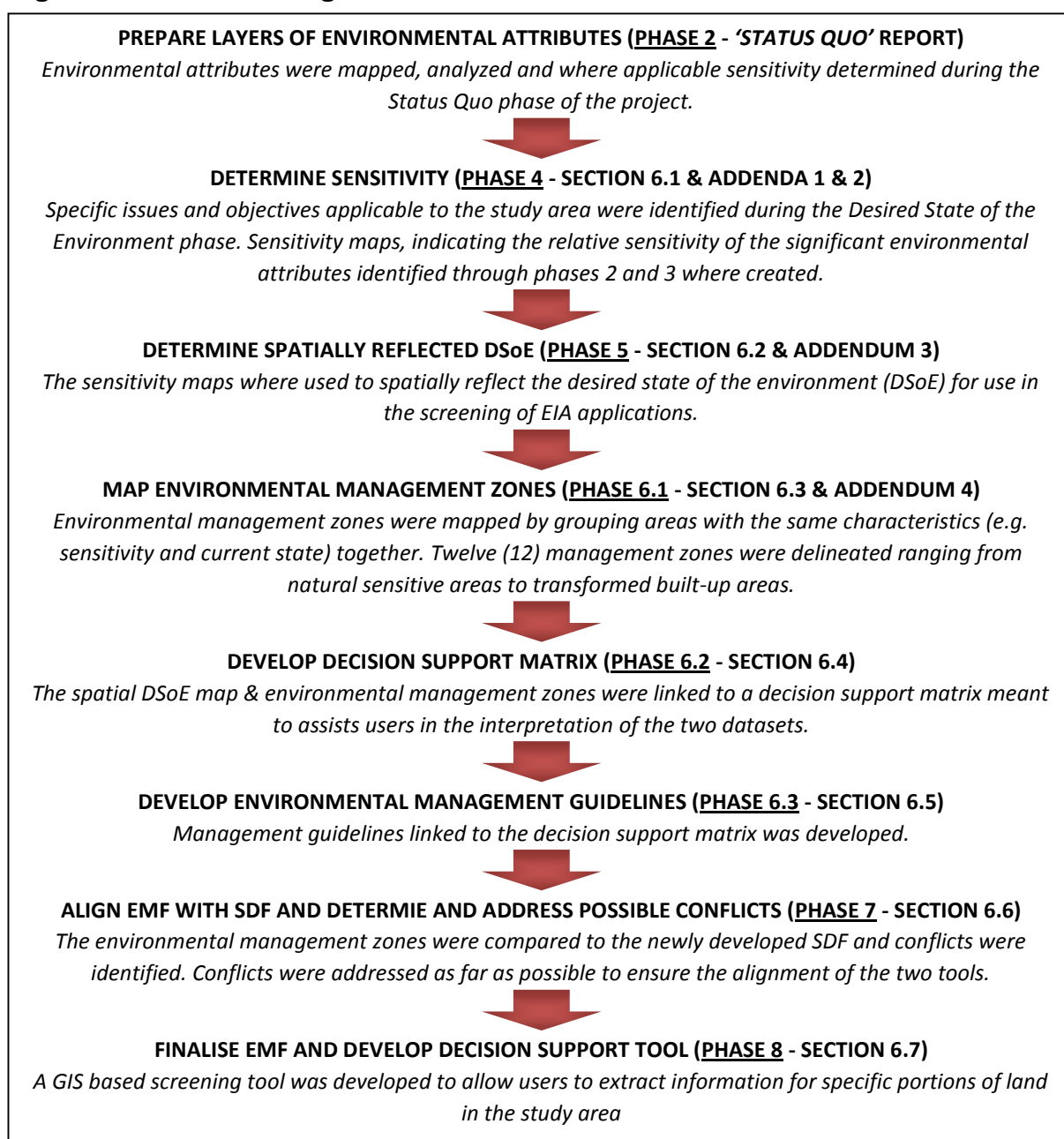


Figure 7. EMF development process

To determine environmental management zones a sensitivity analysis was conducted and mapped in line with the requirements set out in the project Terms of Reference (ToR), the EMF Regulations and the EMF Guidelines. These datasets are aimed at facilitating future decision making on environmental requirements and acceptability of development applications by indicating the environmental sensitivities present in the study area and the extent to which envisaged activities will be compatible in specific areas or zones.

Maps were produced at a maximum scale of 1:50,000 and should therefore not be interpreted beyond this scale. If zoomed beyond 1:50,000 into individual properties or finer areas, the detail displayed will not be accurate or verifiable. It is important to note that the EMF serves as a strategic management tool aimed at assisting decision making and should not be confused with the EIA process which deals with the actual project level decision making process relying on much finer detailed information captured via specialist studies at site specific scales.

7.1 Sensitivity analysis (Phase 4)

A key consideration in the development of an EMF relates to sensitivity. In the context of the EMF, sensitivity is defined as the manner in which a feature in the environment may or may not be affected by specific types of activities or land uses. Specific environmental components, as identified in the DSoE phase (Phase 3), were mapped in terms of their relative sensitivity to impacts that might negatively affect them (see Addendum 10 for the relative sensitivity maps) and are linked to the key strategic objectives that were formulated for the study area. Sensitivity was evaluated for the following possible constraints in the environment:

- Hydrological features;
- High potential agricultural land;
- Biodiversity;
- Topographical features; and
- Socio cultural (heritage) features.

Except for the constraints, opportunities in the area that should be prioritised to stimulate sustainable development were also considered. These opportunities (also attached in Addendum 11) are:

- Development opportunity;
- Renewable energy (solar) development opportunity.

To better understand 'sensitivity' and the way in which it relates to these the strategic objectives an analysis was conducted in which the activities were

evaluated, grouped into activity themes and activity sub-themes and their possible impacts on the environment considered.

From this analysis two types of potential impacts or issues were identified: generic issues and site specific issues. Generic issues or impacts refer to the types of impacts an activity might have regardless of where the activity is being proposed. Site specific issues on the other hand refer to the types of impacts an activity might have on specific locational environmental features, i.e. the sensitive environmental attributes present at a specific location.

7.2 Methodology used to spatially reflect the DSoE (Phase 5)

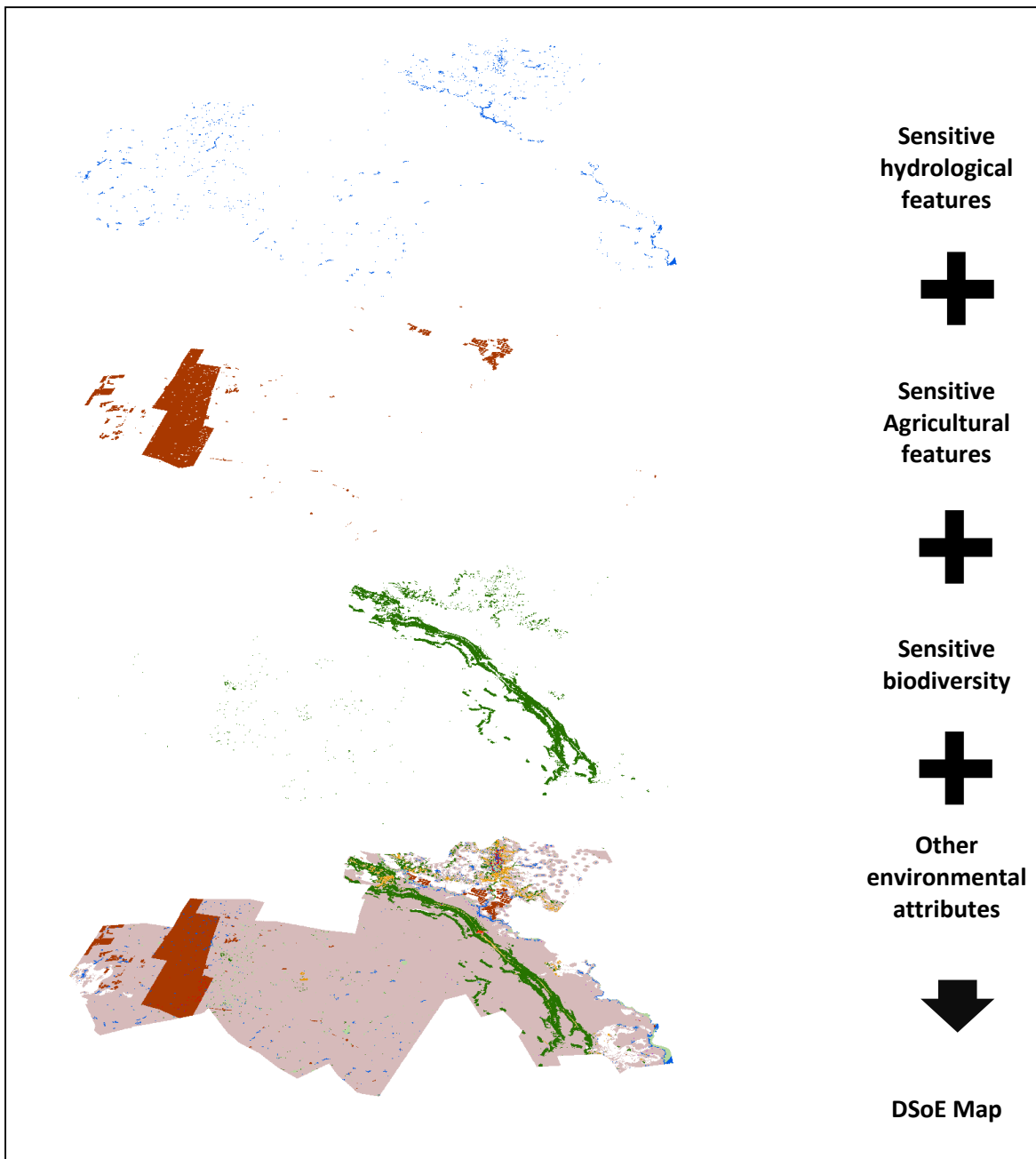


Figure 8. DSoE mapping process

By combining the sensitivity maps for the different environmental components discussed in Section 6.1 with the strategic objectives (Table 6) obtained through the DSoE process and the analysis of possible impacts of listed activities, the spatial DSoE (Addendum 12) could be mapped. The spatial DSoE reflects the features or issues in the environment that might be impacted by certain activities or land uses and should be managed to achieve the objectives of the DSoE. The dataset was generated by combining all the sensitivity datasets into one layer through a non-weighted overlay process (Figure 8) in an effort to generate an objective spatial representation of the DSoE.

For example, the DSoE lists the conservation of areas of high biodiversity in the GTLM as a strategic objective while one of the sensitivity datasets spatially indicates sensitive biodiversity features at a scale of roughly 1:50,000. These areas of sensitive biodiversity will be considered 'sensitive' if present on a parcel where an activity that might negatively impact biodiversity is considered. A more detailed investigation will then have to be conducted during the EIA process to determine the extent and manner in which biodiversity may or may not be affected. The DSoE map (Addendum 12) therefore indicates sensitivities in the area mapped at a scale of 1:50,000 which might have to be further investigated – depending on the envisaged activity – before decisions on environmental authorisations can be taken.

7.3 Methodology used to delineate environmental management zones (Phase 6.1)

To aid strategic environmental management in the area, environmental management zones were delineated by grouping areas which share the same characteristics together. Areas were grouped based on their current or envisaged use (e.g. Agriculture, Residential, Biodiversity, etc.) and their sensitivity to different types of activities. Using this approach the study area was divided into seven (7) management zones (see Addendum 13 for the map). The seven zones are indicated in Table 8.

Table 8: Description of the identified environmental management zones

Zone A – Urban development zone
The 'urban development zone' represents the nodal edges of towns and villages within the GTLM. This zone is characterised by various types of existing urban development and is suitable for various types of land uses. Refer to the GTLM SDF for more detail on these areas.
Zone B – Linear development zone
The 'Linear Development Zone' was derived by mapping a 30m road reserve buffer around National and Main Routes and a 20m buffer around selected secondary roads in the area. Secondary roads were selected based on their role as connectors

<p>between settlements. Some of these roads are gravel roads which will require upgrading in the future.</p>
<p>Zone C – Renewable energy development zone</p>
<p>The ‘Renewable Energy Development Zone’ was derived from a solar potential analysis conducted for the area. Along with the solar potential the proximity of areas to existing Eskom infrastructure was considered to identify areas that are highly suitable for renewable energy generation and specifically photovoltaic solar energy farms. NOTE: Most of the GTLM is suitable for solar energy generation, but the areas indicated in these zones are those that are deemed most suitable.</p>
<p>Zone D – General development zone</p>
<p>The ‘General Development Zone’ is a relatively low sensitivity zone which might be suitable for a variety of development initiatives. The zone represents the areas in which none of the other zones were deemed highly applicable and/or sensitive. This does not mean that no sensitive features are present in this zone and care should still be taken when developing in this zone.</p>
<p>Zone E – Heritage zone</p>
<p>The ‘Heritage Zone’ is characterised by heritage features present in the area. The most prominent feature in this zone is the Taung Skull World Heritage Site and its buffer zone. This zone represents areas of highly significant heritage value that should be managed and protected at all costs.</p>
<p>Zone F – Agriculture Zone</p>
<p>The ‘Agriculture Zone’ represents the existing prime agricultural land in the area as well as the areas deemed suitable for further agricultural development. Agriculture is main priority in this zone and all other types of activities and developments should be avoided.</p>
<p>Zone G – Biodiversity Zone</p>
<p>The ‘Biodiversity Zone’ represents the high biodiversity areas in the study area. Areas of high biodiversity were identified through the analysis and mapping of habitat requirements for key indicator species occurring in the area. Other datasets such as the North West Province Critical Biodiversity Assessment was also considered to optimize and refine identified areas.</p>

These zones will guide strategic level thinking on the management of the area from an environmental perspective and are interpreted through the decision support matrix and accompanying environmental management guidelines in which general management guidelines for these zones as well as possible environmental authorisation exemptions are discussed.

7.4 Decision support matrix (Phase 6.2)

To facilitate the use of the EMF and interpret the sensitivity of the management zone in relation to specific activities a decision support matrix was developed

(See Addendum 14). The decision support matrix can be viewed as the link between the spatial datasets, the activities and/or land uses considered and the strategic objectives for the area. The use of the decision support matrix will be discussed in further detail in **Section 7.7**.

7.5 EMF SDF alignment (Phase 7)

A crucial aspect to consider ensuring the development of an effective EMF is the alignment between the EMF and other spatial tools – especially the SDF for the GTLM. The GTLM SDF was developed concurrently with the GTLM EMF and alignment between the two tools was flagged as an important outcome from the outset of the project. To ensure the effective alignment of the two tools at a spatial level, the management zones were compared to the SDF proposed ‘nodal edges’ layer that indicates the areas prioritised for future development. The management zones were aligned with the SDF, resulting in ‘Zone A – Urban Development Zone’ reflecting the urban development priorities as indicated in the SDF. The SDF further reflects some of the environmental sensitivity layers developed for the EMF.

7.6 Finalization of EMF and development of a spatial screening tool (Phase 8)

Once the EMF was finalised a spatial screening tool, assisting in the extraction of spatial data and the interpretation thereof, was developed. The tool allows users to select a specific portion of land and generate a report specifying the environmental sensitivities present on that portion of land. This information is used along with the decision support matrix and management guidelines to inform decision makers and the general public on the issues or non-issues related to envisaged activities.

7.7 How to use the EMF

The management guidelines, decision support matrix and spatial screening tool are the key components of the EMF. The EMF will assist relevant authorities in the management of the area and give effect to the three main objectives (Figure 9) of the EMF which are to:

- serve as a spatial screening mechanism for EIA;
- provide strategic context for EIA applications in the area; and
- inform strategic spatial planning.

Objective one is achieved through the DSOE dataset (Addendum 12), which indicates the issues that should be investigated in more detail during the EIA process, while objectives two and three are achieved through the management zones dataset (Addendum 13).

For objective two, the management zones dataset will indicate, through the decision support matrix and accompanying management guidelines, whether an envisaged activity is compatible in a specific area/zone or not, viewed from a strategic perspective.

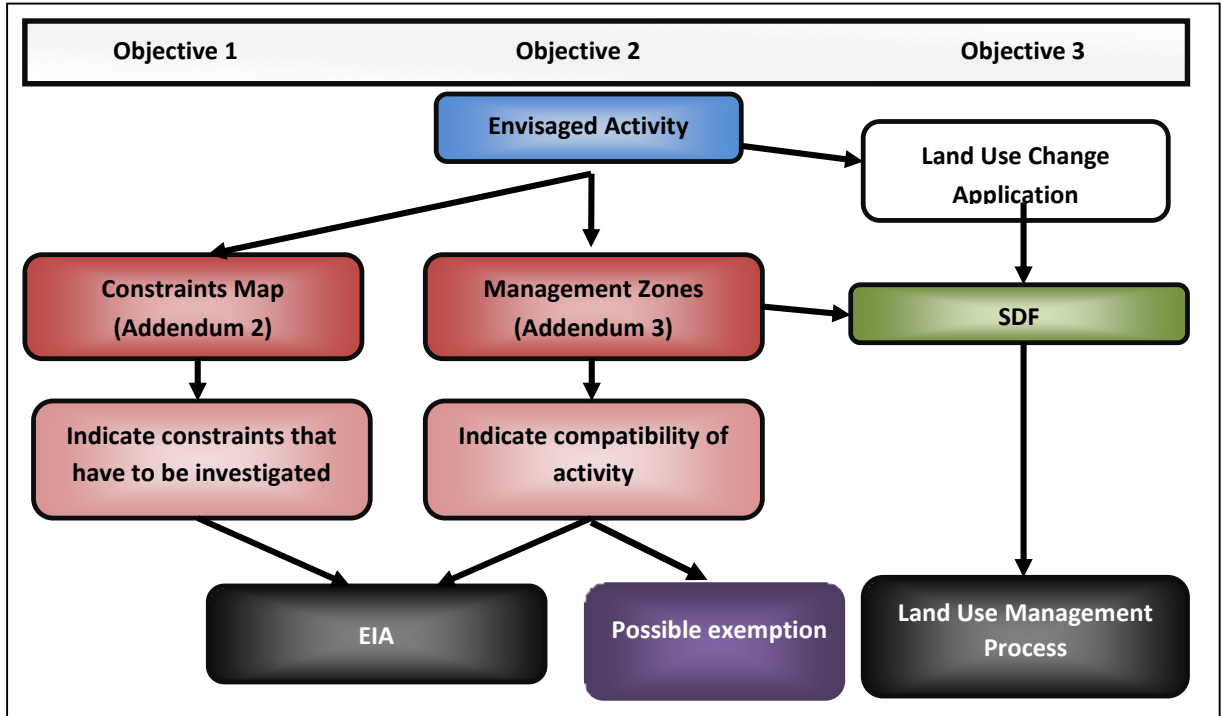


Figure 9. Schematic representation of EMF objectives

For objective three, the management zones dataset was used to inform the development of the GTLM Spatial Development Framework (SDF), which is responsible for strategic spatial planning and guiding of land use management in the area.

To achieve objectives one and two, the EMF is applied by following four steps (Figure 10) that guide the user through the use of the decision support matrix, DSoE dataset and environmental management zones dataset. The four steps are subsequently discussed.

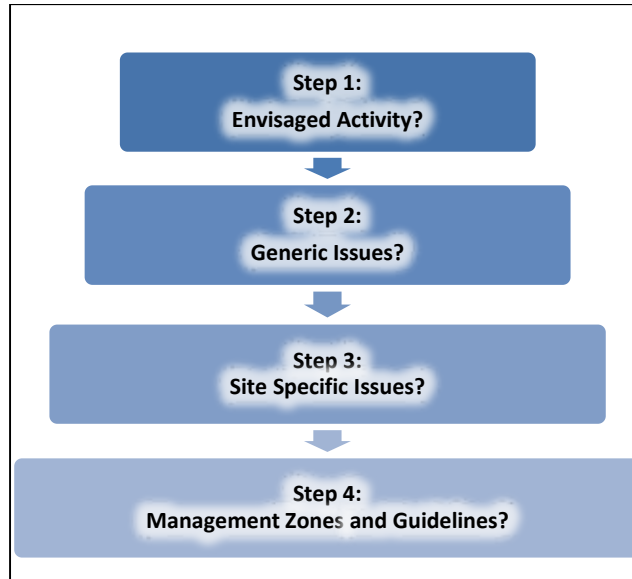


Figure 10. Application of the EMF

Step 1: Identify the envisaged activity.

During the sensitivity analysis all listed activities were investigated and grouped into activity themes and sub-themes. These themes guide the user with regard to the possible impact an activity might have. In Step 1 the user will select the applicable activity or activities from the ‘Applicable Activities’ column (**Figure 11**) in the decision support matrix.

EMF Theme		Applicable activities							Zones (Colours as on 'Management Zones' map)								
		Air pollution issues	Nuisance issues (odours)	Noise related issues	Visual issues	Traffic impact issues	Geotechnical issues	Heritage (archaeological & palaeontological) impacts	Socio-economic impacts	Site Specific Environmental constraints/opportunities							
		Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone									
ENERGY GENERATION ACTIVITIES																	
Electricity generation infrastructure																	
Facilities/Infrastructure for non renewable electricity generation		GNR 983: 2	A	A	A	A	A	A	A	Site specific report	I	I	C	C	I	I	I
		GNR 983: 37															
		GNR 984: 2															

Figure 11. Identify envisaged activity (Step 1)

Step 2: Identify generic issues.

Once the envisaged activity has been established the generic issues associated with that activity should be considered. As discussed, generic issues refers to the types of impacts an activity might have regardless of where the activity is being envisioned and were determined during the sensitivity analysis. The generic activities are listed under the ‘Generic Issues’ column (**Figure 12**) in the

decision support matrix and were determined for each of the sub-themes and indicates which issues should be considered during the EIA process to provide the necessary information to inform sound decision making.

EMF Theme	Applicable activities	Applicable generic issues							Site Specific Environmental constraints/opportunities	Zones (Colours as on 'Management Zones' map)							
		Air pollution issues	Nuisance issues (odours)	Noise related issues	Visual issues	Traffic Impact Issues	Geotechnical issues	Heritage (archaeological & palaeontological) impacts		Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone	
ENERGY GENERATION ACTIVITIES																	
Electricity generation infrastructure																	
Facilities/infrastructure for non renewable electricity generation		GNR 983: 2	A	A	A	A	A	A	A	Site specific report	I	I	C	C	I	I	I
		GNR 983: 37															
		GNR 984: 2															

Figure 12. Identify generic issues (Step 2)

Step 3: Site specific issues.

As explained, site specific issues refer to impacts relevant to a specific portion of land. The 'Site Specific Environmental Constraints (DSOE Dataset)' column (Figure 13) instructs the user to consult a 'site specific report'. This report refers to a report that is generated through the spatial screening tool in a GIS environment (see section 6.5). Once the user has selected the applicable portion of land (location/site) for the envisaged activity, the tool will generate a report listing the constraints that might be impacted by the applicable activity theme. These constraints should then at the discretion of the competent authority be further investigated through specialist studies and considered in decision making.

EMF Theme	Applicable activities	Applicable generic issues							Site Specific Environmental constraints/opportunities	Zones (Colours as on 'Management Zones' map)							
		Air pollution issues	Nuisance issues (odours)	Noise related issues	Visual issues	Traffic Impact Issues	Geotechnical issues	Heritage (archaeological & palaeontological) impacts		Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone	
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		GNR 983: 37															
		GNR 984: 2															

Figure 13. Site specific issues (Step 3)

Step 4: Management zones

The next step involves the management zones dataset which provides strategic context for the EIA decision making process. The twelve management zones are listed in the ‘Environmental Management Zones’ column (**Figure 14**) in the decision support matrix. The matrix indicates the compatibility of each activity sub-theme within each of the different management zones. Compatibility is rated as either ‘Compatible’, ‘Potentially Compatible’, ‘Incompatible’, ‘Possible Exclusion’ or ‘Not Applicable’ (Table 9).

Table 9: Compatibility categories for activity sub-themes

Compatible
‘Compatible’ means that an activity will be acceptable in a specific management zone. The activity will still require an environmental authorisation, but from a strategic level it is deemed suitable and complimentary to the applicable management zone and a positive authorisation should be highly possible.
Potentially Compatible
‘Potentially compatible’ means that an activity is only moderately suitable to a specific management zone. The activity will require an environmental authorisation, but from a strategic level it is deemed relatively suitable to the applicable management zone but more information will be needed to make an informed decision.
Incompatible
‘Incompatible’ means that an activity is not suitable to a specific management zone and should be avoided. An application can still be lodged for an environmental authorisation but from a strategic level it will not be supported. Incompatible activities should be avoided as far as possible.
Possible exclusion
‘Possible exclusion’ refers to activities that may be excluded from the requirement to obtain an environmental authorisation in this management zone. The specific environmental management guidelines referenced in the ‘decision support matrix’ should be consulted on the criteria and requirements for a possible exclusion.

EMF Theme		Applicable activities							Zones (Colours as on 'Management Zones' map)							
		Air pollution issues	Nuisance issues (odours)	Noise related issues	Visual issues	Traffic impact issues	Geotechnical issues	Heritage (archaeological & palaeontological) impacts	Socio-economic impacts	Site Specific Environmental constraints/opportunities						
									Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone	
E: Possible exemption																
C: Compatible																
P: Potentially Compatible																
I: Incompatible																
N: Not applicable																
A: Applicable generic issues																
ENERGY GENERATION ACTIVITIES																
Electricity generation infrastructure																
Facilities/infrastructure for non renewable electricity generation		GNR 983: 2								Site specific report						
		GNR 983: 37	A	A	A	A	A	A	A	I	I	C	C	I	I	A
		GNR 984: 2														

Figure 14. Management zones (Step 4)

The management zones will inform the user on the compatibility of envisaged activities in specific geographical areas or on specific portions of land. If, for example, a portion of land is divided into Zone C (renewable energy development zone), Zone F (agriculture zone) and Zone G (biodiversity zone) the decision support matrix will suggest that an activity that might be 'incompatible' with Zones F and G but only has 'potential exemption' in Zone C, rather be considered in Zone C in an effort to minimize the impact of that applicable activity. The possible exclusion will then be explained through the specific environmental management guidelines (Addendum 15) that is linked to that specific activity in Zone C.

The use of the EMF tool also discussed and explained in the EMF training tutorial video which will be made available during the training sessions.

8 STRATEGIC ENVIRONMENTAL MANAGEMENT PLAN

The purpose of this phase is to develop a Strategic Environmental Management Plan (SEMP) for the GTLM area that addresses management guidelines and responsibilities and include the following strategies:

- for maintaining productive agricultural activity on land where agriculture has been identified as a feasible and desired land use;
- for maintaining biodiversity conservation on land where biodiversity conservation has been identified as a feasible and desired land use;
- for maintaining land as open spaces where identified as appropriate;
- to recommend where feasible development activities may be allowed to proceed without an EIA authorisation;
- that deals with environmental land use management conflicts; and
- for incorporating environmental management zones into SDFs and LUMS.

8.1 Overview and purpose of the SEMF

All environmental management programmes/plans aim to provide arrangements/guidelines to enhance the positive aspects of a project and prevent undue adverse impacts on the environment.

In 2000, SEA was identified as an appropriate instrument to incorporate environmental aspects into strategic planning processes. It was not intended that SEA should replace EIA, but streamline project-specific assessment by providing an effective instrument for environmental assessment at the plan and programme level. SEA may form the context for lower levels of planning and provide input into higher, more strategic levels (DEAT and CSIR, 2000).

In this context, “an EMP (Strategic Environmental Management Plan (SEMP)) that has been developed where a SEA framework exists, should help to establish a sound planning and management framework”. “The SEMF provides the framework for addressing cumulative impacts of ongoing developments through a spatial approach to mitigation, monitoring and management... SEAs highlight key issues of concern in the sector or region, whilst SEMFs may prescribe standard approaches to project design and mitigation through environmental guidelines and monitoring requirements. This reduces the scope of work for individual EIAs and detailed EMPs for projects. SEMFs have increasingly been used in South Africa to provide management frameworks to guide development. The SEMF provides the means to incorporate environmental objectives into development decision-making processes” (DEAT, 2004).

It is now common knowledge that Environmental Management Frameworks were developed and promulgated, instead of SEA, to incorporate environmental aspects into strategic planning processes, highlight key issues of concern in the

sector or region, form the context for lower levels of planning and provide input into higher, more strategic levels.

In this context, a Strategic Environmental Management Plan (SEMP) should help to establish a sound planning and management framework to guide development planning and decision-making, as opposed to specific activities, where an EMF exists, in order to reach certain environmental targets. SEMP provides the means to incorporate environmental objectives into development decision-making processes and may prescribe standard approaches to project design and mitigation through environmental guidelines and monitoring requirements, reducing the scope of work for individual EIAs and detailed EMPs for projects.

8.2 GTLM EMF SEMP

The GTLM EMF SEMP (Table 10) is the actual implementation component of the EMF. It focusses on the identified desired state themes and consists of the strategic objectives that originate from the *Status Quo* and Desired State of the Environment analysis, and intervention strategies or action plans that are required to achieve a consistent and effective implementation of the management zones, as well as the responsible organisations (institutional framework) for achieving the targets. Furthermore, it contains management guidelines for the implementation of the EMF, linked to a system of KPIs to evaluate, monitor and report on progress made towards meeting the DSOE strategic objectives.

Key role players to whom the approaches in the SEMP will be of importance include GTLM and DRSMMDM, National and Provincial Government institutions, as well as the TSWHS management authority and land owners. The key organisations involved in the GTLM and their responsibilities are summarised in **Figure 15**.

A draft copy of the SEMP have been circulated and presented to relevant stakeholders for input.

8.3 Strategic Environmental Management Plan implementation

Strategic environmental management planning is an on-going process that is initiated with the identification of a strategic objective. Once this strategic objective has been identified, different strategies or targets are planned so as to give effect to the identified objective. The implementation of the different strategies so as to achieve the targets is accompanied by monitoring and corrective measures to ensure continuous improvement. The identified and implemented strategies should be routinely revisited so as to ensure that the identified strategic objective will be met (**Figure 16**).

Table 10: Strategic Environmental Management Plan to steer the development in the GTLM towards the identified desired state

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
Strategic objective	Issues addressed	
To manage and utilise the surface and groundwater resources in the GTLM for the benefit of all recognised water users and beneficial water uses, through good planning, decision-making and management, as well as water conservation, in order to assist in securing ecologically sustainable development, while also promoting justifiable social and economic development.	Integrated water resource management	
Support the protection of the surface water resources such as wetlands, vleis and streams by promoting buffer areas around these through good planning, informed decision-making and effective management, so that the contribution of harmful activities to water pollution in the area is prevented or minimised.	<ul style="list-style-type: none"> • Improved surface water quality. • Compliance with the determined integrated Resource Water Quality Objectives (RWQOs). • Acceptable levels of salinity, eutrophication and microbiological contamination in the Harts River system and major tributaries. 	DEA DWS NW READ GTLM DRSMMDM
Limiting activities (crop production, waste water treatment and waste disposal) that may further deteriorate the water quality in these through good planning, informed decision-making and effective management, so that the contribution of such activities to water pollution in the area is prevented or minimised.		
Promote improved management of the water resources of the GTLM through improved source management controls and measures that limit and control point and diffuse sources that may significantly impact on the water resources.		

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
Maintain and protect existing groundwater resources through the sustainable abstraction of groundwater, promoted by good planning, informed decision-making and effective management that considers local hydro-geological conditions, water levels, water balances, appropriate abstraction schedules and the implementation of water conservation and demand management measures.	Effective groundwater management programmes, tailored to local quantity and quality requirements.	DWS NW READ GTLM DRSMDM Organised agriculture
Conduct regular monitoring and assessment of surface and ground water resources and report on water quality parameters.	Regular reports on the status and management of surface and groundwater resources.	DWS DRSMDM Environmental health
Strategic objective		Issues addressed
To allow land owners and users in the GTLM the continuation of their existing rights relating to the sustainable and efficient lawful use of land, while redressing the imbalances of the past and ensuring that there is equity in the application of spatial development planning and land use management systems, while responding to climate change through appropriate adaptation and mitigation arrangements.		Land Use Management
Ensure that the exercise of existing rights relating to the existing lawful use of the land does not threaten the outstanding universal value of the TSWHS.	No infringement by existing rights relating to the existing lawful use of the land on the outstanding universal value of the TSWHS	DEA NW READ GTLM Tribal authorities
Ensure that the exercise of existing rights relating to the existing lawful use of the land does not threaten any sensitive environmental components.	Minimal impacts of existing land uses on sensitive environmental components	DEA DWS NW READ DRSMDM GTLM Tribal authorities

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
Strategic objective		Issues addressed
To promote the long term sustainable use and conservation of natural agricultural resources, including grazing land, and the protection of high potential cropland and its productive use in the GTLM, to ensure national and household food safety and security and profitable agricultural economic output.		Land Capability Land degradation Problem Animal Control Veld Fire Management
Promote land use practices that limit and control land degradation (soil erosion and bush encroachment)	Land use practices that limit and control soil erosion and bush encroachment	DAFF NW READ
Protect and preserve agricultural land and its productive use, in order to ensure that agricultural land remains available and viable for agricultural development.	<ul style="list-style-type: none"> Limited alternative, non-agricultural land uses (development activities) on areas with a better (crop production) land capability and land with good grazing capacity Controlled subdivision of agricultural land that may compromise the viability of farming 	DRDLR DAFF NW READ
Regularly monitor sensitive areas that are susceptible to soil erosion and bush encroachment, to ensure that sustainable land use practises are maintained.	Regular reports on the status of sensitive areas that are susceptible to soil erosion and bush encroachment	DAFF NW READ
Initiate soil protection and bush control projects and measures – through labour intensive Expanded Public Works programmes (EPWP) or Landcare projects.	Labour intensive soil protection & bush control EPWP programmes or Landcare projects	DEA DAFF NW READ
Map all areas where landcare projects/reclamation had been carried out, and monitor these sites.	<ul style="list-style-type: none"> Map of all areas where Landcare projects/reclamation had been carried out Effective monitoring of areas where Landcare projects/reclamation had been carried out 	DAFF NW READ

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
Implement NVFFA objectives related to agriculture	<ul style="list-style-type: none"> • Fire breaks as required by the NVFFA. • Well-trained fire-fighting teams with appropriate equipment to limit the extent of areas burnt and prevent fire damage • Protocols to facilitate the assistance of the Working for Fire initiative. • Proper communication and rapid emergency response procedures to fight veld fires. • Co-ordination and assistance between various role-players, including GTLM, with respect to fire fighting. 	<p style="text-align: center;">GTLM DRSMDM</p> <p>Organised agriculture</p>
Actively discourage problem animals and limit problem animal occurrences and incidents in the GTLM area.	Limited number of problem animal occurrences and incidents	<p style="text-align: center;">NW READ</p> <p>Organised agriculture</p>
Ensure sustainable development of the agricultural sector, in order to maintain and increase rural employment, facilitate a reduction in poverty levels and a sustained improvement in quality of life.	A viable agricultural sector employing optimal numbers of farm workers	<p style="text-align: center;">NW READ</p> <p>Organised agriculture</p>
Strategic objective		Issues addressed
To facilitate sustainable socio-economic growth in the GTLM, through active community participation, enhanced governance systems and capacity, as well as improved co-operation between all spheres of government, in order to improve the lives of all citizens and progressively meet their basic social and economic needs and build just, sustainable communities.		Socio-Economic Development

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
Identify and promote new socio-economic development opportunities that are sustainable and viable to promote and develop the area.	Improved <i>status quo</i> , from mainly agricultural driven economy, to viable alternative land uses that unlock alternative economic opportunities	DRDLR NW READ RSMDM GTLM
Develop the capacity of local SMMEs and entrepreneurs in the GTLM area.	Well-developed SMME and entrepreneurial sector that are provided opportunities to participate in the economy	DRDLR GTLM
Strategic objective		Issues addressed
To promote the development and maintenance of adequate roads, storm water, water and sanitation, electricity and solid waste management infrastructure in the GTLM, to ensure the equitable provision of effective, efficient and affordable services and build sustainable communities.		Buildings & Built Structures Waste management Water provision & sanitation networks Road, electricity & communication networks
Promote acceptable and desired infrastructure development in the GTLM area that enhances the quality of life of all citizens, where affordable.	Adequate infrastructure that meets the needs of local communities and landowners: <ul style="list-style-type: none"> • Well-planned and maintained road network; • Well-planned and maintained water provision and sanitation infrastructure; • Well-planned and maintained electricity network; • Well-planned and maintained waste management infrastructure. 	DWS DRDLR NW Roads department SANRAL RSMDM GTLM
Manage all solid and liquid wastes in the GTLM area in a sustainable manner, in line with national legislation, through <i>inter alia</i> the principles of reduce, reuse and recycle.	<ul style="list-style-type: none"> • Waste disposal facilities that comply with legislative requirements • No negative impacts on sensitive cultural and 	DWS GTLM DRSMDM

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
	environmental features due to poor waste and waste water management practices	NW READ Tribal authorities
Strategic objective		Issues addressed
<p>To conserve and sustain terrestrial and aquatic ecosystems in the GTLM, including vulnerable and unique ecological communities, as well as rare indigenous plant and animal species, through good planning, decision-making and management, as well as wise and efficient use of natural resources, to ensure sustainable and equitable benefits to the people of Taung.</p>		<p>Threatened ecosystems Critical biodiversity & conservation areas Areas of high biodiversity & potential red data species habitat Wetland ecosystems & likely riparian areas Alien Invasive Plants</p>
<p>Encourage conservation efforts in biodiversity priority areas that are currently not well protected, through good planning, decision-making and management, to ensure that a representative sample of biodiversity and key ecological processes are conserved.</p>	<p>Biodiversity is effectively managed in biodiversity priority areas, such as:</p> <ul style="list-style-type: none"> • key ecological corridors (ridges and valleys) • high priority fragments of natural habitats (wetland ecosystems and likely riparian areas, areas of potential red data species habitat, as well as • unique ecological communities/ assemblages. 	<p>DEA NW READ GTLM Tribal Authorities</p>
<p>Support the protection and conservation of vulnerable and endangered ecosystems, unique ecological communities, as well as localised or rare indigenous plant and animal species by good planning, informed decision-making and effective management</p>	<ul style="list-style-type: none"> • No activities allowed that impacts negatively on the protection and conservation of vulnerable and endangered ecosystems, unique ecological communities, as well as localised or rare indigenous plant and animal species in the GTLM • The following areas are incorporated into 	<p>DEA NW READ GTLM Tribal Authorities</p>

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
	planning and decision-making processes that may impact on them: <ul style="list-style-type: none"> ○ National Protected Areas Expansion Strategy focus areas; ○ National Freshwater Ecosystem Priority Areas; ○ Critical Biodiversity Areas; ○ Threatened ecosystems, etc. 	
Manage and control alien invader plant infestations and limit distribution of exotic plant species to undeveloped areas.	<ul style="list-style-type: none"> • Limit development activities that cause soil disturbance or only allow these after adequate environmental impact assessments, in order to minimise the potential for IAP invasion. • Develop and implement an invasive species monitoring, control and eradication plans for the GTLM, as part of the IDP. 	DEA DAFF DRDLR NW READ GTLM
Initiate IAP control projects through the labour intensive Working for Water programme or Landcare projects.	Labour intensive IAP control and eradication programme or Landcare projects	DEA DAFF NW READ
Strategic objective		Issues addressed
To promote new mining activities in the GTLM that stimulate economic development and does not threaten the sustainability of local communities.		Mining opportunities
Promote mining activities that can contribute to economic development appropriately in such a way that it does not threaten the sustainability of local communities.	Mining activities that stimulate economic development and does not threaten the sustainability of local communities	DMR Holders of rights

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
Strategic objective		Issues addressed
Promote the development of renewable energy generation facilities that will stimulate economic development and harness the solar potential and existing electricity transmission infrastructure in the GTLM area.	Solar development potential	
Promote the development of renewable energy generation facilities	An increasing number of solar energy generation facilities	GTLM Tribal authorities
Strategic objective		Issues addressed
To conserve and manage a full range of the cultural heritage of the GTLM, especially the TSWHS and the abundant fossils, through good planning, decision-making and management, to ensure sustainable and equitable benefits to the people of Taung, now and in the future.		Heritage resource management
Finalise the boundary of the buffer zone of the TSWHS to meet the IUCN and UNESCO requirements for a World Heritage Site, as well as the applicable legislative requirements for protected area management.	Formalised buffer zone boundary of the TSWHS	DEA NW READ SAHRA
Address co-operative governance needs to ensure alignment between the NW READ, GTLM and Tribal Authority planning processes and requirements.	<ul style="list-style-type: none"> • Good, co-ordinated planning and development decisions that protects the TSWHS • Effective management of the TSWHS and other heritage resources in the GTLM area 	READ GTLM Tribal authorities
Respect and acknowledge the importance of cultural heritage, whilst fostering an appreciation of and pride in the nation's heritage.	<ul style="list-style-type: none"> • Compliance with the provisions of the National Heritage Resources Act and the World Heritage Convention. 	READ SAHRA GTLM Traditional authorities Scientific community

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
Strategic objective		Issues addressed
To protect and conserve the unique topographical and geological tufa features on the eastern edge of the Ghaap Plateau, with its associated biodiversity, cultural and heritage values from urbanisation and development actions that would destroy these features.	Topography & Geology	
Support the protection of the unique topographical and geological tufa features on the eastern edge of the Ghaap Plateau, with its associated biodiversity, cultural and heritage values from development activities that would destroy these features, through good planning, informed decision-making and effective management.	No activities allowed to occur which impacts negatively on the current <i>status quo</i> of the area.	NW READ GTLM DRSMDM Tribal Authorities
Strategic objective		Issues addressed
To reduce the negative impact of poor air quality as a result of emissions from fossil fuel use in residential applications, industrial sources and transport on human health and the environment through good planning, decision-making and management that considers the impacts of all sources of air pollution on surrounding areas.	Air quality management	
Reduce the negative impact of poor air quality as a result of emissions from fossil fuel use in residential applications, industrial sources and transport on human health and the environment	Strict control over emissions from fossil fuel use in residential applications, industrial sources and transport	DRSMDM Environmental health GTLM
Monitor strategic important air quality parameters in the GTLM area	Monitoring of strategically important air quality parameters	DRSMDM Environmental health
Strategic objective		Issues addressed
To promote the optimal development and utilisation of the tourism potential of the GTLM, especially the TSWHS, whilst not compromising the outstanding universal value thereof.	Tourism and recreation development	
Promote tourism and economic development opportunities in the region.	A variety of tourism destinations that cater for different markets	NW READ DRSMDM

Actions (Targets)	Key Performance Indicator (KPI)	Organisations
		GTLM
Promote the redevelopment and beautification of the towns and villages in the GTLM area.	Successful redevelopment and beautification projects	DRDLR NW READ DRSMDM GTLM
Optimally develop and utilise the tourism potential of the GTLM area	<ul style="list-style-type: none"> • Graded and accredited tourism facilities. • Well-developed SMME tourism facilities. • Well-trained personnel, e.g. guest house and lodge managers, housekeeping staff, tour operators etc. 	NW READ DRSMDM GTLM
Promote more effective marketing through the development of new markets and the expansion of existing activities.	More effective initiatives to develop new markets and promote tourism	NW READ DRSMDM GTLM
Strategic objective		Issues addressed
Promote the development of renewable energy generation facilities that will stimulate economic development and harness the solar potential and existing electricity transmission infrastructure in the GTLM area.		Solar development potential
Promote the development of renewable energy generation facilities	An increasing number of solar energy generation facilities	GTLM Tribal authorities

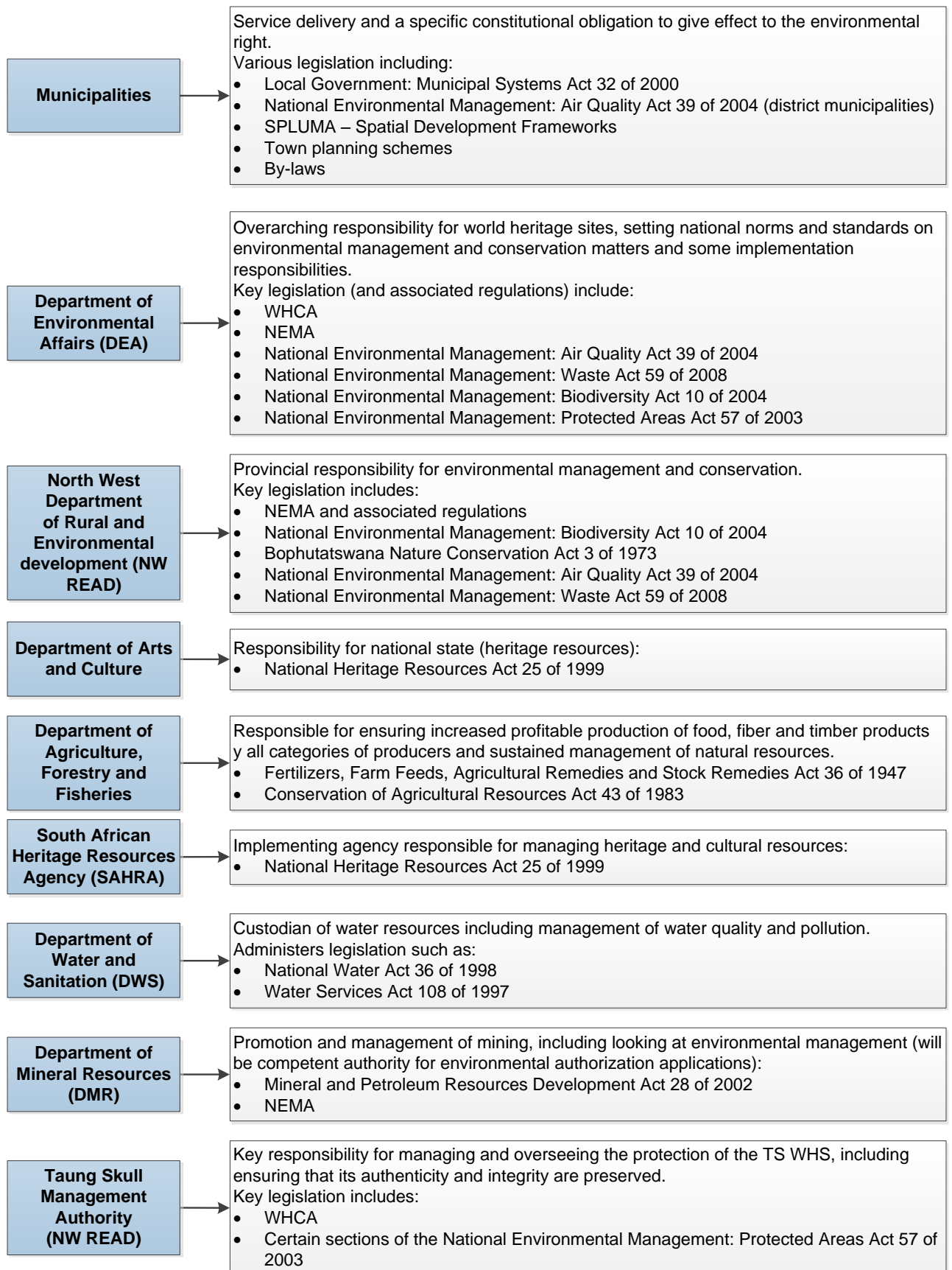


Figure 15. Key organisations involved in the GTLM



Figure 16. Schematic illustration of the SEMP process

8.4 Environmental management guidelines (Phase 6.3)

Environmental management guidelines were developed for each of the management zones (See Addendum 15). General guidelines were developed, which is meant to guide the overall management of the zones. In addition to the general environmental management guidelines, specific environmental management guidelines were developed for specific activities in each zone. Where mentioned, specified NEMA listed activities may be considered to be excluded from the requirement to obtain an environmental authorisation from the competent authority within a specific management zone. These exclusions will be subject to the specific environmental management guidelines pertaining to such specific activities in such management zones. The general, as well as the specific environmental management guidelines for the various zones are provided in **Addendum 15**.

9 IMPLEMENTATION PLAN

In order to implement the EMF, the following steps as set out below are recommended. The SEMP and its implementation will also play an important role in the effective implementation and roll out of the EMF towards meeting the desired objectives as identified.

Table 11: EMF Implementation Plan

Receive and consider the final EMF as submitted by the consultant.	RRA
The EMF as submitted by the consultant must be internally circulated, considered and commented on.	GTLM NW READ DEA DRDLR
Collation of Internal Comments	
Once the EMF has been internally circulated for comment, all such comments must be collated and forwarded to the consultant for consideration and finalisation of the EMF. It is at this point that the Department must decide whether or not to circulate the finalised EMF to the I&APs identified and consulted throughout the EMF process.	GTLM NW READ DEA DRDLR
Internal Acceptance & Alignment of Internal Functions for Gazetting of EMF	
<p>The Minister of Environmental Affairs or the MEC responsible for environmental affairs, in concurrence with the Minister, may adopt an environmental management framework (South Africa, 2010). For any EMF that has been triggered by issues of a provincial and local nature, such as the GTLM EMF, the MEC, with the concurrence of the Minister, may initiate the adoption process (South Africa, 2012).</p> <p>The EMF process is already supported by NW READ, as the relevant provincial authority. The READ MEC can therefore, legally initiate the adoption process. The MEC will also be the custodian of the EMF once it has been adopted.</p>	NW READ
Notice must also be given to the national minister tasked with environmental affairs, who has to ultimately concur with the findings and recommendations. Upon receipt of concurrence, official publication of the EMF by NW READ via a notice in the Government Gazette.	NW READ DEA
The EMF document, once finalised should be prepared for gazetting. All internal functions and process must be completed and aligned in	NW READ

preparation for the EMF to be gazetted.	
Initial Gazetting	
The intention to adopt the EMF must be gazetted.	NW READ DEA
Collation and Consideration of Public Comments	
All public comments received in the commenting period allowed for by the gazetting of the EMF must be collated and considered. If required, inputs from the consultant team may be sought.	NW READ DEA Consultant
Final Gazetting	
The final EMF must be gazetted. All internal alignments and process must be completed.	NW READ DEA
Once adopted, the MEC must publish a notice in the Government Gazette indicating that the EMF has been adopted (South Africa, 2010).	NW READ
EMF Roll out and Implementation	
In this phase several actions have to be completed: <ul style="list-style-type: none"> • The EMF must be loaded onto appropriate GIS systems for use. • Training must be conducted on the use of the EMF tool within DEA, DRDLR, NW READ, as well as GTLM & DRSMMDM. • Alignment of the EMF, as well as other strategic tools and processes must be pursued and ensured, as well as the implementation of the SEMP. 	GTLM NW READ DEA Consultant All relevant authorities
The EMF, once adopted, will have to be considered by the competent authority in decisions on applications for environmental authorisations, during the evaluation of development proposals through the environmental impact assessment process. It has to be considered during the evaluation of activities that may have a negative impact on the GTLM geographical area (South Africa, 2010).	NW READ DEA
The information and guidelines contained in the EMF may, however, be used to inform decision-making and spatial planning in the GTLM area, with or without the final concurrence of the Minister. The SDF has already been aligned with the EMF, therefore the IDP review process, in particular, should draw on the EMF information to refine and add detail to the current strategic planning proposals.	NW READ GTLM DRMDM
Monitoring the effectiveness of the EMF	
The adopted GTLM EMF will have to be monitored on a regular basis to ensure that it achieves its purpose and goal. The effectiveness of the	GTLM NWREAD

<p>EMF in decision-making and development proposals must be monitored against the achievement of the strategic environmental objectives and the desired state of the environment (South Africa, 2010).</p>	<p>DRDLR DEA</p>
<p>Review and revision of the EMF</p>	
<p>The EMF may from time to time, or as specified in the revision schedule of the EMF, be revised on the initiative of the Minister, or the MEC in concurrence with the Minister. Areas of improvement must be identified and any necessary changes should be effected (South Africa, 2010).</p>	<p>NW READ DEA</p>
<p>Once the GTLM EMF has been revised, notice must be given in the Government Gazette or the official provincial Gazette of the revision (South Africa, 2010).</p>	<p>NW READ</p>

10 REFERENCES

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11 ADDENDUMS

Addendum 1: GTLM Public stakeholders

Title	Initials/Name	Surname	Company/Department/Organisation	Tel	Cell	E-mail
Mr	AM	Adeola	J & G Consultant		0833717253	adeolaa@jgconsultant.co.za
Mr	Adebayo	Adetunji	J & G Consultant	0123611051	0736086165	adebayoa@jgconsultant.co.za
	JJJ	Babaseng	TL		0736202207	
Mrs	Z	Bango	DRDLR	0123129628	0714884461	zongezile.bango@drdlr.gov.za
	Tharina	Boshoff	NW READ, Environmental Planning and Coordination	0183895656		tboshoff@nwpg.gov.za
Mr	Dirk	Cilliers	NWU	0182991587	0845177979	dirk.cilliers@nwu.ac.za
	DF	Clapton	GTLM		0828040545	fclapton15@gmail.com
	EC	Conradie	NWU CEM	0182991588	0749109820	26917488@nwu.ac.za
Mr	Sam	Dagane	DRDLR	0183977640	0828270625	sam.dagane@drdlr.gov.za
Mr	Steyn	de Jager	GTLM	0539949425	0823243724	steyn@taunglm.co.za
Mr	John	Dire	NW READ, DR RSM District Services	0539280625	0832749846	Jdire@nwpg.gov.za
	MR	Duma	GTLM	0539949400	0843597314	dumam@taunglm.gov.za
Mr	Gerbrandt	Ferreira	J & G Consultant		0742602139	ferreirag@jgconsultant.co.za
	Katlego	Gabanakgosi	GTLM Municipal Manager			
	Bando	Gaven	NW READ, Taung Skull WHS	0183895345	0829279085	mgaven@nwpg.gov.za
	Pogiso	Gorele		0123128594		pogiso.gorele@drdlr.gov.za

Title	Initials/Name	Surname	Company/Department/Organisation	Tel	Cell	E-mail
Mrs	Wanda	Hofmeyr	NWU CEM	0182991590	0837946134	wanda.hofmeyr@nwu.ac.za
	GG	Huma	GTLM	0539949400	0834177871	humag@taunglm.co.za
	Sinoxolo P	Jali	National DRDLR	0123129579 0123128668	0787676270	sinoxolo.jali@drdlr.gov.za
	J	Kahayakgosi	GTLM	0539949400		
	Ratanatig Boitumelo S Heroni AK Malebogo	Kasienyane Kasienyane Kgableng Kgeshane Khuinana	Provincial Ward Councillor	0539742960 0123999532	0799847068 0783392898 0719707492 0734419161	mkhuinana@environment.gov.za
Mr	Mohalepule GR	Kraai Kuntwane	Baga-Maidi T/C		0710813572 0761562057	Bagamaidi@gmail.com
Adv	Lesego GJ	Leawe Legodu	BTC Trustee		0719055956 0826477115	legodulg@gmail.com
	Humbelani C	MaaholiMa bholi	GTLM	05399494530539941 080	07813244360781324 430	mashauh@taunglm.co.za
	HC BS JD Lesego P	Mabhou Magobane Malotsha Marima	GTLM ANC Member DMR DRDLR	0539941080 0184874300 0183977645 0183977642	0781324430 0731570789 0769329794	mashauh@taunglm.co.za lesego.marima@drdlr.gov.za

Title	Initials/Name	Surname	Company/Department/Organisation	Tel	Cell	E-mail
	HC	Mashau	GTLM	0539949453 0539949454	0781324430	mashauh@taunglm.co.za
Ms	Rhulani P	Mathebula	NW READ, IEM	0183895122	0834350688	mathebula@nwpg.gov.za
	Nephawe	Mbavhalelo	DMR	0184874300		Mbavhalelo.Nephawe@dmr.gov.za
Mr	NN Theunis	Mehluiana Meyer	DA Member NWU CEM	0182991467	0730384577 0836270637	theunis.meyer@nwu.ac.za
	Nonkololeko	Mgeza		0183882642	0799903109	nthango@nwpg.gov.za
Mr	Magezi E	Mhlanga	DRDLR	0123128668	0718531227 0795151167	magezi.mhlanga@drdlr.gov.za
Mr	Abel	Mocwiri	NW READ, DR RSM District Services	0539941975	0718624317	Amooiwiri@nwpg.gov.za
Mr	RR Simon	Mofmaya Moganetsi	READ DEA	0123999309	0739930754 0829063070	smoganetsi@environment.gov.za
	KH Motshabi	Mogatusi Mohlalisi	GTLM NW READ, IEM	0145973597	0723805483 0721578434	mogatusik@taunglm.co.za mmohlalisi@nwpg.gov.za
	EM	Mokgodi	DRDLR	0183977642 0183977622	0794928523	elizabeth.mokgodi@drdlr.gov.za
	NL	Mokoto	GTLM	0539949400	0822556481	mokoton@taunglm.co.za
Mr	PJ	Molale	BTC Trustee		0786092218	
Mrs	Thuso	Morake	DRDLR	0183977600	0736865360	thuso.morake@drdlr.gov.za
	Ismael	Morimedi			0768724706	

Title	Initials/Name	Surname	Company/Department/Organisation	Tel	Cell	E-mail
Ms	Malefyane	Mosadi	NW READ, IEM	0127092822 0127091274	0813044891	mosadim@nwpg.gov.za
Mrs	TJ	Moseki	TL		0795661875	
Mr	TC OJ	Mosiapowa Mosimege	Baga-Maidi T/C		0739978124	Bagamaidi@gmail.com
Mrs	Makhumo	Mothoa	GTLM	0539949453	0794319543	mothoa@taunglm.gov.za
Mr	Khanyiso	Mtolo	DEA	0123998848	0846944533	kmtolo@environment.gov.za
Mr	Phathu	Mukwevho	NWU CEM	0182991448	0794063812	26584484@nwu.ac.za
	Khathu	Muruba	DRDLR	0123128663	0813169062	khathu.muruba@drdlr.gov.za
	Ngodiseni S	Musetha	DRDLR	0123129435 0123128668	0823739879	ngodiseni.musetha@drdlr.gov.za
	Thanyani	Mushadu	DRDLR	0123129579	0763467708	thanyani.mushadu@drdlr.gov.za
Prof	Johan	Nel	NWU CEM	0182994279	0836270636	johan.nel@nwu.ac.za
Mr	Robert	Nemanashi	NW READ, IEM	0182996696	0766045346	rnemanashi@nwpg.gov.za
Mr	Bradley	Nethononda	DEA	0123999318	0726832873	bnethononda@environment.gov.za
Mr	Phumudzo	Nethwadzi	DMR	0184874300	0824670886	phumudzo.nethwadzi@dmr.gov.za
	TV	Ngobeni	DRDLR	0183977645	0727105135	thandeka.ngobeni@drdlr.gov.za
	Neo PG	Nkwe Ntlharapane	Community Member GTLM	0539949400	0794072037 0765553833	paballo@taunglm.gov.za

Title	Initials/Name	Surname	Company/Department/Organisation	Tel	Cell	E-mail
Mr	OP	Oliphant	GTLM	0539949453	0834190568	opoliphant@gmail.com
	Siphiwe W	Phakathi	DRDLR	0123129801	0838900789	siphiwe.phakathi@drdlr.gov.za
	Tshilidzi	Phalala	DMR	0184874300	0838717350	Tshilidzi.Phalala@dmr.gov.za
	Raymond	Puana	DRDLR	0123128681		raymond.puana@drdlr.gov.za
Prof	Francois	Retief	NWU	0182991586	0836892293	francois.retief@nwu.ac.za
	MP Tshepiso Wnani	Sefule Seobi Shirilele	NWU CEM DRDLR	0182994299 0183977642	0730003702 0788045126 0796088250	tshepiso.seobi@nwu.ac.za
Mr	Pieter	Swart	DMR	0184873000	0824581404	pieter.swart@dmr.gov.za
	Wally	Tahutle	NW READ	0183895985	0828068841	wally@nwpg.gov.za
	Ellis	Thebe	NW READ, IEM	0183895099	0828059591	gethebe@nwpg.gov.za
	Livhuwani	Tshilate	DMR	0184874341 0184874300	0829398588	livhuwani.tshilate@dmr.gov.za
Mrs	Kealeboga Marijke	Tshipa van Heerden	NW COGTA		0783392898 0828056872	Mvan Heerden@nwpg.gov.za
Mrs	Simoné	van Rooyen	NWU CEM	0182991448	0726665201	20801114@nwu.ac.za
Mr	Adriaan	van Straaten	NW READ, IEM	0183895054	0823892054	avanstraaten@nwpg.gov.za
Mr	Schalk	Vorster	NW READ Disaster Management	0183895405	0834431638	svorster@nwpg.gov.za
Mr	Tony	Walker	J & G Consultant		0824403911	tonyw@tonywalkertrp.co.za
	Ipeleng	Wezi	DMR	0184874300		ipeleng.wezi@dmr.gov.za

Title	Initials/Name	Surname	Company/Department/Organisation	Tel	Cell	E-mail
Mr	Siyabonga	Zondi	DEA	0123999316	0726857293	szondi@environment.gov.za
	Buyisiwe	Zuma		0123128594		buyisiwe.zuma@drdlr.gov.za

Addendum 2: Minutes of focus group meeting with the Project Management Team



Minutes of the Taung Environmental Management Framework (EMF) PMT/PSC Desired State of the Environment Visioning Meeting

Meeting:	Taung EMF Meeting
Date of meeting:	Wednesday, 29 October 2014
Time of meeting:	09:00
Meeting room:	Taung Library: Training Centre

1. Opening and Welcome

Mrs. Makhuma opened the meeting by welcoming everyone and each individual introduced themselves and Apologies were announced for all the people who couldn't make it (*see the Attendance Register*).

Presentations:

G and J Consultants did their first presentation. This presentation had a lot of discussions. **The MMC of the GTLM was asked to explain the vision of the IDP.**

Response:

He explained that the municipality wants to have a way forward in terms of improving development in the next 10 years or so. Their focus is on agriculture and also they need to address unemployment rate issue.

Other questions and comments from participants:

- The SDF is currently focusing on 5 years term, what can be done to make it a longer term plan?
- Taung has a lot of environmental issues, so they request the consultants to look on that too and that there is some information on the current SDF document that we can look at.
- The 2009 report has identified some areas of high biodiversity sensitivity
- It is requested that the SDF should show the link with the NDP, and Mr. Adebayo answered that there is a link between the two.
- Where will the infrastructure be covered?, Answ: in the social and economic development report
- Is the money/funding supplied expected to regenerate itself or is it just a once off funding from the government. Answer for that is still required from the politicians.
- What method/technique will G&J consultants use towards planning? Answer: they need to first have the data and then they will know which approach to take.
- Who will be responsible for coming up with recommendations at the end?. answ: The national department.
- The issue in communities is the lack of land space to live on, so it is suggested to ask them what they think about moving forward.

CEM 2013-222: TAUNG ENVIRONMENTAL MANAGEMENT FRAMEWORK (EMF) PROJECT:

DESIRED STATE OF ENVIRONMENT MEETING

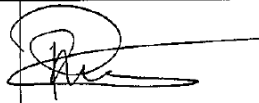

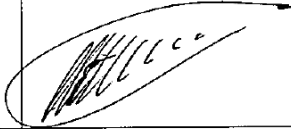
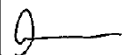
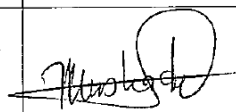
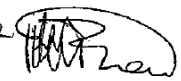

Date: Wednesday 29 October 2014

Time: 09H00

Place: Library Taung; Training Centre



Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
Adabayo Adotunji	J&G	Town Planner	0736876185	adabayo9@dg Consultant.co.za	
TC MEYER	NWU-CEM	EMF PROJECT MANAGER	0836270637	THEUNIS.MEYER @NWU.AC.ZA	
Adesla Abiodun	J & G	GIS & Remote Sensing	0833717253	adeslaa@jg Consultant.co.za	
HUMBELANI MASHAU	GTLM	Town Planner	053 904 9453 0781324430	mashauh@taunglm.co.za	

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
Phatwe Mkweliso	CEM	Env. consultant	07960 63812	2855668k@nwu.ac.za	
Rhubeni Mathebala	READ	Town Planner	018 3895122	rmathebala@nwpg.gov.za	
Magezi Mhlanga	DRDLR	TRP	012 312 8668	MEMhlanga@ruraldevelopment.gov.za	
Tawona Makhetha	DRDLR	TRP	012 312 8667	TMMakhetha@ruraldevelopment.gov.za	
THANYANI MUSHADU	NATIONAL DRDLR	TRP	012 312 8681	Thanyani.mushadu@drdlr.gov.za	
Raymond Ruana	DRDLR	TRP	012 312 8681	RR Ruana@ruraldevelopment.gov.za	
STEYN DE JAGER	ETLM	STRATEGIC MANAGER	082 324 3724	steyn@taunglm.co.za	

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
TONY WALKER	J & G CONSULTANTS	LAND USE SCHEME SPECIALIST	0824402911	tongw@ tongwalkertp.co.za	<i>[Signature]</i>
AP Shepherd	GTLM	Asst. Chair H/O A.C.T.D.	0824194588	info@stony	<i>[Signature]</i>
LAWRENCE MOKOTO	GTLM	LAND-USE	0822556481	mokoto@taunglmaza	<i>[Signature]</i>
Sinoxolo Jali	DRDLR	TRP	0123128681	SPJali@ruraldevelo pment.gov.za	<i>[Signature]</i>

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:

Addendum 3: Minutes of focus group meeting with the Tribal Authorities



Minutes of the Taung Environmental Management Framework (EMF) Desired State of the Environment Visioning Meeting with the Tribal Authorities

Meeting:	Taung EMF Meeting
Date of meeting:	Wednesday, 29 October 2014
Time of meeting:	11:00
Meeting room:	Taung Library: Training Centre

Mrs. Makhuma introduced the two chiefs to the panel.

1. The chief of the Maldi gave a detailed description of the villages:

- Kudutlou village has minerals in the soil
- Kukumeng village has underground flowing water and also minerals
- Molelema is a flat area and good for agricultural purposes.
- Matseng is about 10 to 20 km from Molelema which is also good for agriculture
- About 3 km from Molelema is Motsema village also rich in minerals and oil in the oil.
- Tlapeng village on the north side of the river has beautiful biodiversity of trees and rocks and also attractive mountains. There are various plant species of Motlopi and one of these is used as coffee. One of the rocks can be used to make sawdust and sold for business purposes.
- Taung dam combines the Maldi and Phuducwane
- They think a reservoir/ catchment can be built for livestock feeding in the Morokweng village west of Khudutlou.
- Lenganeng village has strong sun or high radiation and they think a solar plant can be built there.
- Mathanthanyaneng has springs and they think there is platinum underneath.
- Graspan village, the mountain area and soil used to be taken from there for road construction and this place has beautiful natural vegetation
- Dekuthing is a flat area with catchments that hold water after rain and good for grazing of wildlife.
- Pitsong has beautiful rocks called thabatsedi, has flowing rivers and springs occur and this can be used for wildlife purposes.
- Generally the Maldi area is not good for agricultural practices and there is a possibility of acid water underground.
- They propose that they be supplied with water from vaal dam.

2. The chief of the Phodocwane had this to say:

- They have 116 villages so they explained only few villages of interest
- Morageng has a vacant land that can be used for development of estate properties
- Norlin Taung skull heritage site. There are people who want to mine and there is a proposal to build hostels and a college. the soil has lime
- Thomeng heritage site, tourist attraction. Underground water coming out and this site is declared natural site that need protection. there is a proposal for slate mine
- Seshobo has a big vacant land that can be used for development

- Mogapela A & B also has some vacant land and there is a solar plant in between the two villages. he thinks it can be used for real estate development
- Dryharts can be good for any development
- Kokonyana close to the taung dam so there is space that can be used for tourist attraction
- Taung dam – alluvial diamonds
- Modimong stands on top of minerals, kimberlite pipeline, and there is a game farm called pandora. There is a marble mine close to N18.
- Ga-Hlomo u – underground water flowing from kuruman, rainwater does not infiltrate, motladi tree indicator of underground water. Limestone extends to falken. Trees: mokwana, modoto, motlwari and mogonono.
- Buxton precious underground rocks and river. Beautiful weathered rocks.
- Water catchments next to dryharts
- 3. **In Taung it could be difficult to move people because of the graveyards**
- 4. **The individuals who have the ownership to the land do not use the land instead they lease it to other people.**

Possible other heritage sites of Taung:

- **Monument of goshi**
- **Small Haven close to Thomeng and next to Buxton**
- **Footprint in MATLAKU**
- **Kolong – Cave identified as cave for witches**

CEM 2013-222: TAUNG ENVIRONMENTAL MANAGEMENT FRAMEWORK (EMF) PROJECT:

DESIRED STATE OF ENVIRONMENT MEETING


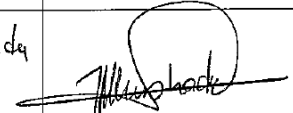


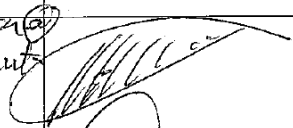

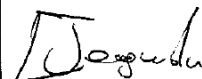
Date: Wednesday 29 October 2014

Time: 11H00

Place: Library Taung; Training Centre



Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
O'S Mosimegi	Bu-ommit Tribal Comm		082 6587586		
Methoc. M	GTLM	Town planner	079 431 9543 053 994 9453	wethocam@ taunglm.c.za	
F. L. Mkhona	J & G Consultants	S. P	012 361 1051	nkunail@ jgconsultant. co.za	
TONY WALKER	J & G CONSULTANTS	TOWN PLANNER	082 440 3911	tonyw@ tonywalkertop.co.za	

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
Phofu Mubwelo	CEM	env. consultant	0794063412	26584484@ nwu.ac.za	
THANYANI MUSHADU	NATIONAL: DRDLR	TRP	012 312 8681	thanyani.mushadu @ddt.gov.za	
Raymond Puona	DRDLR	TRP	012 312 8681	RNPuona@ ruraldevelopment gov.za	
Tawana Mathetha	DRDLR	TRP	012 312 8667	CNMathetha@ ruraldevelopment.gov.za	
Magezi Mhlanga	DRDLR	CTRP	012 312 8668	MEMhlanga@ ruraldevelopment gov.za	
KGOSI MOCHWANESI	BAGA PITUDUHUWANE TRIBAL COUNCIL	P.M	0834927961	kgosimochwanesi @gmail.com	
GOITSEONE LEGODU	BAGA PITUDUHUWANE TRIBAL COUNCIL	TRUSTEE	0710525718	legody@gmail.com	

Greater Taung Local Municipality Environmental Management Framework – November 2015

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
Venus NGOBENI	DRDLR	Town Planner in Training	018 3977645	TUNGobeni@rural development.gov.za	
Lesego Marima	DRDLR	Town planner in training	018 397 7645/ 42	Lesego.Marima@ drdlr.gov.za/ Pmarima@ ruraldevelopment.gov.za	
Wisani Shirilele	DRDLR	Candidate TOWN PLANNER	0796082565	WisaniShirilele@ ruraldevelopment. gov.za	
Rhubani Mathabula	READ	Town Planner	0854350688	rmathabula@ nwsp.gov.za	
Thuso Morake	ORDLR	Town Planner	018 397 7640 0736865360	thuso.morake @drdlr.gov.za	
Adebayo Adetunji	J&G	Town Planner	0736536185	adebayo9@jg Consultant.co.za	
TC MEYER	NWU-CEM	EMF PROJECT MANAGER	0836270637	THEUNIS.MEYER @NWU.AC.ZA	
Adeola Abiodun	J & G	GIS & Remote Sensing	0833717253	adeola@jg Consultant.co.za	
HUMBELANI MASHAU	GTLM	Town Planner	083 994 9053 0781324430	mashau@taunglm.co.za	

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
TONY WALKER	J & G CONSULTANTS	LAND USE SCHEME SPECIALIST	0824802911	tong.w@tongwalkertp.co.za	<i>[Signature]</i>
AP Shepherd	ETLM	Act. D.	0824194568	info@etlm.co.za	<i>[Signature]</i>
LAWRENCE MOKOTO	GTLM	LAND-USE	0822556481	mokoto@taunglm.co.za	<i>[Signature]</i>
Sinoxolo Jali	DRDLR	TRP	0123128681	SPJali@ruraldevelopment.gov.za	<i>[Signature]</i>
STEYN DE JAGER	ETLM	STRATEGIC MANAGER	0823243724	steyn@taunglm.co.za	<i>[Signature]</i>

Addendum 4: Minutes of focus group meeting with Community Representatives, held on 30 October 2015 at the Mmabana Arts, Culture and Sports Centre, Taung



Minutes of the Taung Environmental Management Framework (EMF) Desired State of the Environment Visioning Meeting with Community Representatives

Meeting:	Taung EMF Meeting
Date of meeting:	Thursday 30 October 2014
Time of meeting:	11:00
Meeting room:	Mabana Cultural Centre

Comments and concerns from community members and Authorities:

SDF

- The Taxi association has a concern about upgrading of utilities and social infrastructure, roads because roads are their taxis are getting ruined
- Issues on availability of clean drinking water
- The chiefs must be given power to have influence on the economy of Taung
- Taung has big agricultural land and schemes but the technology has replaced people and therefore resulting in high unemployment rate
- There is no proper functional clinic/healthcare centres including emergency transport to hospitals
- There must be a method developed to try and preserve water for livestock
- There are housing problems and it seems chiefs are not working with the municipality on this issue and other related land issues.
- The local livestock owners are getting fined as a results of their animals feeding on private land/farms.
- In Kaarstaat there is no primary and pre-schools, no clinic and no transport.
- There is a currently a certain development in Taung Dam and the local people are not happy about that since they are not aware of what is happening.
- Waste management need to be improved in Taung by building a dump site.
- There must be a development of sports & recreational facilities in Taung such as sports ground for the youth.

EMF

- Sewage system and dumping site must be moved away from close proximity to people.
- Before the CEM completes this report they need to meet with different authorities to identify all agricultural issues. **Mr John Dere – Dept. Agriculture, cell: 071 471 4466**
- High potential agricultural and grazing land is being given to people by the chiefs to build houses on.
- There is a need to identify areas that will be considered degraded land.
- It was suggested that another meeting must be held with all the stakeholders such as all chiefs available so that they can be involved

Water protection problem:

- Incorporate new study on Spitkops dam

- There is a catchment between Kuruman and Vryburg after rainfall, so perhaps something can be done to sustain the area because it is a beautiful place.
- The water association must be involved in this study.
- Khakhweng next to Dry harts - there is running water and maybe it can be used for other purposes.
- Land rehabilitation must be included in this study.

CEM 2013-222: TAUNG ENVIRONMENTAL MANAGEMENT FRAMEWORK (EMF) PROJECT:

DESIRED STATE OF ENVIRONMENT MEETING

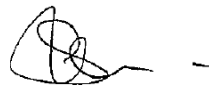
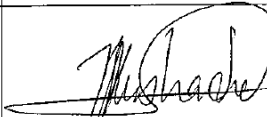



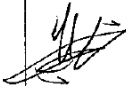

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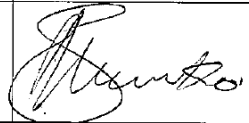
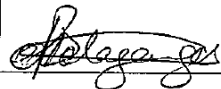


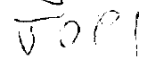
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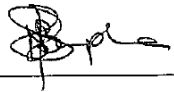
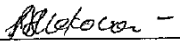


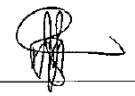



Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
ADV GT LEGODU	BTG TCI	TRUSTEE	0826477115	legodu14@gmail.com	
Rhulani Mathabula	READ	Town Planner	018 389 5122	rmathabula@nwpp.gov.za	
Etawana Nkhethe	DRDLR	TRP	012 312 8667	CMNkhethe@ruraldevelopment.gov.za	
Ntsikelelo Kubeka	Dr Ruth S. Manpati District Municipality	Town Planner	053 921 1095	ntsikelelo@bophirima.co.za	

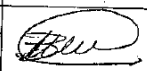

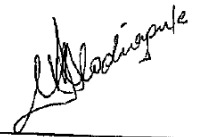
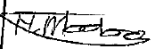


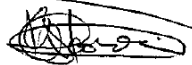
Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
Samuel Mkenisi	DATF	Forestry	053 927 3141 082 642 7417	SamuelMK @datf.gov.za	
THANYANI MUOHADU	DRDLR	TRP	012 312 8681	thanyani muohadu@drdlr. gov.za	
Sinoxolo Jali	DRDLR	TRP	012 312 8681	SPJali@ruraldevel opment.gov.za	
Lesege Marima	DRDLR	TRP in Training	018 397 7645	Lesege-Marima @drdlr.gov.za	
Venus NGABENI	DRDLR	TRP in Training	018 397 7645	Tvingobeni@rural- development.gov.za	
Nisan Shirilele	DRDLR	TRP	018 397 7642/644	Nisanshirilele@ drdlr.gov.za	
TONY WALKER	J & G. CONSULTANTS	TOWN PLANNER	082 640 3911	Tonyw@ tonycoalitionrp.co.za	

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
F. L. Mkhoma	J&S Consultants	S.P	012 361 1051 083 529 1369	mkuma@jgconsultant.co.za	
Magezi Mkhanga	DIDLK	CTRP	012 312 8668 071 853 1237	mmkhanga@didlk.com	
TONY WALKER	J & C. CONSULTANTS.	TOWN PLANNER	082 440 3911	tony.w@conywalkertp.co.za	allw.
Phatleu Mubwello	CEM NWU	Env. Consultant	018 299 1448 079 406 3812	26584484@nwu.ac.za	
Adebayo A.O	J&G	Town planner	073 667 6165	adebayo@jgconsultant.co.za	
Kenny Jampati	CDW Premier office	CDW	053 99 49600 072 9826740	kjampati@cdw.co.za	
Ginos	Fazi ASS.	Arany	053 99 46062 082 48 96413	ginos@yahoo.com	

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
Albert Moloko	Ward Comm 12.		0838009842		
T. J. Masingali	Bogosi Whole		083576582 0835706892		
O. B. Palagangwe	Ward Council 12		0730087443		
A. B. Baistse	Bogosi		083736862		
J. M. Baistse	Bogosi		-		+
S. L. Ngomo	Ward 03		0737977398		
Juel MOTWagole	Magogo		0729665 117		

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
Daniso B Sokupha	Redrite T. ASS	MAGOGONG	0723245729		
Pjere N. Makoloi	Redrite Taxi	MAGOGONG	073 96 49381		
EDWARD SETHLODI	REDRITE TAXI ASS	LOWOR MANGAK-GORO, ITIRAGONG	0734427811	e.sethloodi@gmail.com	
Rashide Sebadiso		CDK Premier's office	0722441958		
CAROL RANKUS		CDU Premier's office	0725519910	rankuscara@gmail.com	
Kegomatswe Mmamaleka		Premiers Office	0724883595	mmamaleka@gmail.com	
Tweio Sere		Premiers off	071 759 1012		

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
LETUHOGO HDLO BITHETANE	PREMIERS OFFICE	CSW	078 555 8867	Alagide@gmail.com	
Neo Morethe	PREMIER'S OFFICE	SUPERVISOR CDWP	081 271 6645	morethen@gmail.com	
Bontleeng Tsebeny	PREMIER'S OFFICE	CSW	078 8109 606		
Piet Van Riet	VAN HARTS WATER	S.W.C	0795080009	Waterbantaan Noord @ V.Hart	
Mathomota Mounamona	B.T.C	TRADITIONAL Councilor	0822142832		
MOKHELE K.C HEALTHY MIRA KOSIMESIE	W.L.C PROVINCIAL PUBLIC WORKS	WARD COMMITTEE P.D. FACILITIES MANAGEMENT	0785210561 082 665 1095	mokhele@gmail.com kmosimege @ 17WPA.GOV.ZA	

Name:	Company:	Designation:	Telephone Number:	E-mail Address:	Signature:
Boincelo Hantise	PWR1	Property Management	053 928 7216	bhantise@nwpg.gov.za	
Mahlatli MAHLATHI	PWR	PROPERTY MANAGER	053 928 7253	MMahlatli@nwpg.gov.za	
THABO MODIRARILA	D PWR	SUB-DIST MANAGER-TAUNG	053 994 1607	tmodirarila@nwpg.gov.za	
NAOMI MBOBO	WARD COMM		07 38259427		
Kesemise S. Gasegoiwe	WARD Comm. Member		078 5282706		
NOUWE		W/C			
Keabaka Matlooi	OFFICE OF THE PREMIER	CDM	0835922555	keabaka.matlooi@gmail.com	

Taung EMF Project Attendance Register, Meeting

Addendum 5: Minutes of focus group meeting with key stakeholders, held on 28 January 2016 at the Mmabana Arts, Culture and Sports Centre, Taung



Minutes of the Greater Taung Local Municipality (GTLM) Environmental Management Framework (EMF) Public Participation (PP) Meeting

Meeting:	GTLM EMF PP Meeting
Date of meeting:	Thursday, 28 January 2016
Time of meeting:	10:00
Meeting room:	Mmabana Arts, Culture and Sports Centre, Taung

1. Questions and responses

The questions asked by the PP meeting attendees, and responses to the above mentioned questions by Mr Theunis Meyer, the Chair of the PP meeting follows.

1.1. Question 1:

Does the Greater Taung Local Municipality (GTLM) or the community from the GTLM have the power to make decisions regarding development, i.e. specifically regarding heritage resource development?

• **Response to question 1:**

The heritage resource in the GTLM is the Taung Skull Fossil Site. This is a World Heritage Site which is protected by national legislation, which is enforced by both the national and provincial (i.e. the North West Department of Rural, Environment and Agricultural Development) spheres of the government. Thus, both the national and provincial spheres of the government have decision-making powers regarding development of heritage resources. The community from the GTLM can provide input into the decision-making process by means of public participation, but they do not have decision-making powers. They can only influence the decision-making process. However, the tribal councils and chiefs in the GTLM have certain decision-making powers. Furthermore, there are many laws that regulate all

types of development in South Africa. Usually more than one decision needs to be made by more than one government department.

1.2. Question 2:

Trees grow at random. The animals that the community members from the GTLM own graze near the trees. The trees obstruct the view that the owners of the animals have from their settlements. Since the owners of the animals cannot clearly see their animals, this creates an opportunity for thieves to steal the animals. Can the owners of the animals cut the trees in an effort to curb theft?

- **Response to question 2:**

Animals need both trees and grass to feed on. Animals feed on trees during the winter when the grass is scarce. Trees also provide shelter against weather conditions, they provide shade from the sun and the bird droppings under the trees provide nutrients to the grass. It is not recommended that the trees are cut. It is thus recommended that other mechanisms be considered, such as the relocation of animals or that the owners of the animals hang bells around the animals' necks. This way they can hear the animals when they are out of sight.

1.3. Question 3:

The Integrated Development Plan (IDP) is based on the community's needs. The GTLM asks the community what developments they need. The community, for example, replies with a sport field. Can the EMF inform the GTLM on the need for, for example, a sport field? Can the GTLM further suggest another development need if a sport field is not regarded as a priority development need? What if the GTLM and the community from the GTLM agree on the need for, for example a sport field, but the EMF does not regard it as a priority development need?

- **Response to question 3:**

An EMF considers the environmental constraints that a development need may have on a development location. The development location associated with the least environmental constraints is then regarded as the most suitable development location for that development need. Thus, an EMF only informs about the most suitable location for, for example a sport

field. It does not inform on the need or priority thereof. The EMF is not a political decision making tool, it informs on where to develop rather than what to develop.

1.4. Question 4:

Along the N18 there is a pound where roaming animals are kept. The number of roaming animals there crossing the road is a problem. Can the GTLM put up road traffic signs to warn motorists of the animals crossing the road as there are many vehicle accidents occurring in the area? This issue has been brought under the attention of the local traffic department in the past without any action resulting therefrom.

- **Response to question 4:**

The South African National Roads Agency Limited (SANRAL) maintains the road networks in South Africa. This issue must be brought under the attention of the GTLM, which must then bring it under the attention of SANRAL. Thus, the GTLM can assist with this issue, but SANRAL must respond to it.

1.5. Question 5:

Can Mr Theunis Meyer assist the community from the GTLM with an enquiry into the management of the 1) animal pound along the N18; as well as 2) roaming animals crossing the road, as mentioned previously?

- **Response to question 5:**

Mr Theunis Meyer will enquire into the management of the animal pound along the N18 and will inform Ms_ Makhumo Mothoa of the outcome of the enquiry.

1.6. Question 6:

What are the disadvantages associated with a photovoltaic power station, i.e. a solar park, and what negative impacts, such as underground tanks polluting groundwater, will a solar park have on livestock after 20 years?

- **Response to question 6:**

The soil, where the solar park will be constructed, will be disturbed since the cables, poles and transformers need to be grounded. The transformers may contain chemicals, such as polychlorinated biphenyl (PCB). Large trees may be cut, since they provide shade that may block the sun's rays from reaching the panels of the solar park. Usually, the vegetation, except for the large trees, is left undisturbed, since grass, for example, may suppress dust that may settle on the panels of the solar park. Small livestock may be allowed to graze under the panels of the solar park, but not cattle, since they may cause damage to the panels' poles. With regards to underground tanks, these usually do not contain harmful chemicals. A solar park is usually operational for 25 years. After 25 years South African legislation mandates that the developers of a solar park rehabilitate the developed area. The operation of a solar park may be extended well beyond 25 years.

1.7. Question 7:

Will the EMF address the upgrade of the road networks in the GTLM?

- **Response to question 7:**

As mentioned previously, SANRAL maintains the road networks in South Africa. The EMF focuses on the development of infrastructure, such as housing, rather than the upgrade of the road networks.

1.8. Question 8:

Who is the representative for the EMF at the GTLM?

- **Response to question 8:**

The representative for the EMF is Ms. Makhuma Mothoa from the GTLM's Land Use Department.

1.9. Question 9:

Many roads in the GTLM are not tarred, resulting in a lot of dust emission affecting air quality. Will the EMF deal with this issue?

- **Response to question 9:**

Road maintenance is a municipal mandate that will be addressed in the future.

2. Comment

The comment made by the GTLM follows.

2.1. Comment 1

The community of the GTLM does acknowledge that the municipality is doing its best to bring services to the people. However the community is currently facing water availability challenges and they request water provision service to be fast tracked.

- **Response to comment 1 made by the GTLM:**

The GTLM is trying its utmost to provide basic services to all community members in the GTLM, which will improve the quality of life. The GTLM is aware of the lack of water in some areas where settlements are far from water pipelines.

3. Annexure 1: Attendance register

The attendance register follows.



DEPARTMENT OF LAND USE AND HUMAN SETTLEMENTS

PUBLIC PARTICIPATION
DATE: 28th January 2016
TIME: 10H00

VENUE: Mmabana Taung

INITIALS & SURNAME	ORGANISATION	CONTACT INFORMATION	SIGNATURE
1. Tshayiso Sebe	CEM - NWU	Tel: 018 299 4299 Cell: 078 804 8126 Email: tshayiso.sebe@nwu.ac.za	
2. Simone van Ruyper	NWU - CEM	Tel: 018 299 1208 Cell: 072 666 5201 Email: 26801114@nwu.ac.za	
3. Phatlutshedzo Mkweliso	NWU - CEM	Tel: 018 299 1208 Cell: 079 406 3812 Email: 26801114@nwu.ac.za	
4. KWANT SHIRILELE	URDLR	Tel: 018 299 1208 Cell: 07965654 Email: kwantshirilele@urdlr.gov.za	
5. Makhund Mofika	GREATER TAUNG LOCAL MUNICIPALITY	Tel: 053 990 1080 Cell: 079 431 9543 Email: makhundmofika@taungmunicipality.gov.za	
6. M. Molebogo	Local Municipality	Tel: Cell: 08 47453148 Email:	

Tel: Administrative Office (053) 994 9400 / Political Office (053) 994 9600
Fax: Administrative Office (053) 994 3917 / Political Office (053) 994 9613
Website: www.greatertaunglocal.gov.za



INITIALS & SURNAME	ORGANISATION	CONTACT INFORMATION	SIGNATURE
7. R.P. Mathebula	MW-READ	Tel: 016 389 5122 Cell: 083 435 0584 Email: rmathebula@nwps.gov.za	
8. S.P. Phakam	DRDLR	Tel: 012 312 9801 Cell: 083 8900 7824 Email: siphakam@drdlr.gov.za	
9. Z. BANGO	DRDLR	Tel: 012 312 9628 Cell: 071 488 4461 Email: zangazile.bango@drdlr.gov.za	
10. Lesego Moring Leshele	DRDLR Tlokweng PA	Tel: 018 397 7645 Cell: 076 93 89 794 Email: lesegomoringa@drdlr.gov.za	
11. Moses Khumalo	ATC	Tel: Cell: Email:	
12. K.H. Mosatusi	GTLM	Tel: Cell: 072 380 5483 Email: mosatusik@taunglocal.gov.za	
13. D.R. Motungwa	Read	Tel: 073 922 0754 Cell: Email: motungwa@read.co.za	

Tel: Administrative Office (053) 994 9400 / Political Office (053) 994 9600
 Fax: Administrative Office (053) 994 3917 / Political Office (053) 994 9611
 Website: www.greatertauglocal.gov.za



	INITIALS & SURNAME	ORGANISATION	CONTACT INFORMATION	SIGNATURE
14.	Mothalepule kraai		Tel: Cell: 0710813572 Email:	<i>R.M. Kraai</i>
15.	K. S. M. M. M.		Tel: Cell: 0731238377 Email:	<i>K. S. M. M. M.</i>
16.	S. M. M. M.		Tel: Cell: 0719702492 Email: 0719059558	<i>S. M. M. M.</i>
17.	L. M. M. M.		Tel: Cell: Email:	<i>L. M. M. M.</i>
18.	KEALEBOGA TSHIPU		Tel: Cell: 0789010550 Email:	<i>K. M. M. M.</i>
19.	BOITLAMELO KASIENTHANE		Tel: Cell: 0763392898 Email:	<i>B. M. M. M.</i>
20.	R. M. M. M.		Tel: Cell: 079 9549 063 Email:	<i>R. M. M. M.</i>

Tel: Administrative Office (053) 994 9400 / Political Office (053) 994 9600
 Fax: Administrative Office (053) 994 3917 / Political Office (053) 994 9611
 Website: www.greatertaunglocal.gov.za



DEPARTMENT OF LAND USE AND HUMAN SETTLEMENTS

PUBLIC PARTICIPATION

DATE: 28th January 2016
 TIME: 10H00

VENUE: Mmabana Taung

	INITIALS & SURNAME	ORGANISATION	CONTACT INFORMATION			SIGNATURE
			Tel:	Cell:	Email:	
21.	MR Sefale		Tel:	073000 2702		
22.	BUSHUBAFC		Tel:	0782656013		
23.	Mr. Mosisa		Tel:			
24.	MEG MEKE	Community Member	Tel:	079 4076 037		
25.	A. K. Kgeseane	Ward 4 Executive	Tel:	082 0687394		
26.	A. M. Mthembu		Cell:	0734419161		
			Email:	taung SAPS		
			Tel:			
			Cell:			
			Email:			

Tel: Administrative Office (053) 994 9400 / Political Office (053) 994 9600.
 Fax: Administrative Office (053) 994 3917 / Political Office (053) 994 9611.
 Website: www.greatertauglocal.gov.za



DEPARTMENT OF LAND USE AND HUMAN SETTLEMENTS

PUBLIC PARTICIPATION

DATE: 28th January 2016
TIME: 10H00

VENUE: Mmabana Taung

INITIALS & SURNAME	ORGANISATION	CONTACT INFORMATION	SIGNATURE
27. T.J Ngobeni	DR DLR	Tel: 018 297 7600 Cell: 072 710 5135 Email: thandeka.ngobeni@drrlr.gov.za	<i>[Signature]</i>
28. M. M. Mkhwanane	DIA Member	Tel: Cell: 073 038 4577 Email:	<i>[Signature]</i>
29. B.S. Magobane	ANC	Tel: 073 157 0789 Email:	<i>[Signature]</i>
30. Flom Kgatlhane	ANC Thibit'sane Village	Tel: Cell: Email:	X
31. HC MABHOLI	GTLM	Tel: 053 994 1080 Cell: 078 132 4430 Email: mashaich@taunglm.co.za	<i>[Signature]</i>
32. TC MEYER	NWU-CEM	Tel: 018 299 1467 Cell: 083 629 8631 Email: TITENIS.MEYER@NWU.AC.ZA	<i>[Signature]</i>

Tel: Administrative Office (053) 994 9400 / Political Office (053) 994 9600
Fax: Administrative Office (053) 994 3917 / Political Office (053) 994 9611
Website: www.greatertaunglocal.gov.za



INITIALS & SURNAME	ORGANISATION	CONTACT INFORMATION	SIGNATURE
33. A.K. Kgobane	Prov-Nat-Comm.	Tel: 0539749900 Cell: 0984419161 Email: TOLING SAPS Tel: 0824610686	
34. P. M. Kgobane	DMIR	Tel: 018 487 4300	
35. J.D. Mqolokha	DMP	Tel: - Cell: - Email: -	
36. K. M. Mokoena	-	Cell: 0783625013 Email: - Tel: -	
37. M.J. Mokoena	Komungu	Cell: - Email: - Tel: 0768724 706	
38. ISMAEL MOCWEDI	-	Tel: - Cell: - Email: -	

Tel: Administrative Office (053) 994 9400 / Political Office (053) 994 9600
 Fax: Administrative Office (053) 994 3917 / Political Office (053) 994 9611
 Website: www.greatertaunglocal.gov.za

Addendum 6: Minutes of focus group meeting with key stakeholders, held on 12 May 2015 at the North-West University, Potchefstroom



Minutes of the Greater Taung Local Municipality (GTLM) Environmental Management Framework (EMF) Key Stakeholder Meeting

Meeting:	GTLM EMF Key Stakeholder Meeting
Date of meeting:	Tuesday, 12 May 2015
Time of meeting:	10:00
Meeting room:	CEM, North-West University (NWU), Potchefstroom

1. Opening and welcoming

Prof Johan Nel from the CEM welcomed all present and expressed his satisfaction with the project (see Annexure 1 for the attendance register completed during the meeting).

Mr Theunis Meyer from the CEM then further welcomed all and allowed everyone to briefly introduce themselves.

2. Presentation delivery in accordance with the agenda of the meeting

Mr Theunis Meyer addressed the following agenda items by means of a PowerPoint presentation:

- 1. Introduction to the project and project team**
- 2. What is and EMF?**
- 3. Key environmental constraints and opportunities in the GTLM**

Mr Wally Mmutle from the North West Department of Rural, Environment and Agricultural Development (NWREAD) raised the issue of possible land claims being made in the GTLM. According to him the tribal council is in the process of claiming some land. Mr Theunis Meyer responded by explaining that land claims only change the ownership of land, not the use thereof.

Mrs Makhumo Mothoa from the GTLM expressed concern that land owners in Taung should be allowed to exercise their existing rights on a piece of land, especially where this is in conflict with good land-use practices. Mr Adebayo Adetunji from J&G Consulting suggested that houses should be built for the people forced to move from the unsafe houses (in the flood plain of the river) that they are currently residing in.

4. GTLM desired state of the environment (DSoE)

Mr Schalk Vorster from the NWREAD raised the issue of social grants negatively impacting on development in the GTLM. According to him, the people receiving these grants use the grants to buy cattle and build houses. Too many cattle may lead to overgrazing and houses build in the floodplains may pose a flooding risk. He suggested that social grants be used as an instrument to influence behaviour in a positive manner.

He further suggested that provincial growth should take place through promoting heritage and tourism (statement made by the premier of NW). Thus, the project team should review the mission of the EMF to include both culture and tourism. This should also be applied to the mission of the SDF.

Mr John Diri from the NWREAD suggested that agricultural infrastructure should form part of the infrastructure referred to in the second strategic objective.

Mr Siyabongo Zondi from the Department of Environmental Affairs (DEA) stressed the importance of the third strategic objective. He suggested that land use issues can be dealt with using similar approaches as those implemented by the City of Cape Town Metropolitan Municipality. Mr Adriaan van Straaten from the NWREAD highlighted the fact that there exist practices of unlawful land use in the GTLM. He suggested that this should be eliminated by focussing only on the lawful use of land. Mr Wally Mmutle indicated that two sources of power (the chief and the municipality) should be considered when dealing with issues of land use, i.e. it should be established where the people residing on a piece of land received the power to do so, from the chief or municipality.

Mr Simon Moganetsi from the DEA commented that the importance of needs and desirability must be clearly stated in the EMF.

Mrs Band Gaven from the NWREAD suggested that all the protected areas in the GTLM should be fenced or clearly demarcated. This will restrict other decision making bodies from

making decisions in these protected areas. Mr Theunis Meyer ensured her that this is well provided for in both the EMF and SDF.

Mr Schalk Vorster expressed that the only way to stop chiefs from giving away land to people is to give them some financial compensation and then giving them a mandate to protect and conserve the land. Prof Johan Nel explained that chiefs in Botswana and Kenya receive compensation in exchange for conservation.

Mr John Dire from the NWREAD indicated that the Taung Skull World Heritage Site (TSWHS) is not the only protected area in the GTLM. In 1963 it was proclaimed (in a RS proclamation document) that irrigated land should be set aside for agricultural development only. To date houses have already been built on the irrigated land. The irrigated land is, by virtue of the law, excised from communal land. Land Affairs is the custodian of this land. Hence, Land Affairs must conserve the irrigated land for agricultural development only.

Mr Simon Moganetsi made reference to the topic of climate change resilience referred to in the third strategic objective. He enquired about the way in which climate change resilience will be achieved. Mr Theunis Meyer explained that climate change resilience here specifically refers to flooding. Mr Simon Moganetsi suggested that, in order to manage climate change, the environment as a collective should be managed. Mr Magezi Mhlanga from the Department of Rural Development and Land Reform (DRDLR) suggested that climate change vulnerability assessment should be included in the EMF as a deliverable. This will enable the user of the EMF to understand the vulnerability of climate change. Mr Adriaan van Straaten indicated that the method to be followed to achieve climate change resilience is not addressed in the EMF. Mr Theunis Meyer explained that this is addressed throughout the EMF in various sections. Mr Magezi Mhlanga suggested that the research on climate change done by Mr Adriaan van Straaten should be incorporated into the EMF. Mr Theunis Meyer suggested that Mr Dirk Cilliers, from the NWU, should evaluate the research and decide whether it should be incorporated. He further suggested that it should be stated that the research was considered and will be incorporated in future.

Mr Phumudzo Nethwadzi from the Department of Mineral Resources (DMR) enquired about the inclusion of new mining activities in the sixth strategic objective. He suggested that the word new be removed, i.e. this objective should refer to mining activities as a whole.

Mr Simon Moganetsi suggested that the secondary strategic objective referring to biodiversity should be elevated to a primary strategic objective. He argued this by virtue of

the importance of plants for medicinal use by tribal communities in the GTLM. Mr Theunis Meyer explained that although it is listed as a secondary strategic objective, it is still as important as a primary strategic objective.

Mr Simone Moganetsi suggested that an objective on using the EMF to achieve the DSoE should be included.

Mr Dirk Cilliers addressed the following agenda items by means of a PowerPoint presentation:

5. GTLM draft EMF

5.1. Spatial representation of the DSoE

5.2. Environmental management zones

5.3. Use of the decision support tool

Mr Adriaan van Straaten indicated that the TSWHS is a protected area. Taking this into consideration, he wanted to know where the TSWHS is mapped, under heritage or biodiversity. Mr Dirk Cilliers responded by explaining that the TSWHS is mapped under heritage. Mr Theunis Meyer further explained that heritage takes preference in this instance.

Mr Magezi Mhlanga indicated that the area surrounding the N14 hold high agricultural and mining potential. Mr Theunis Meyer explained that this area is regarded as an area of conflict and that mineral rights trump other land uses.

Mr Simon Moganetsi and Mr Magezi Mhlanga suggested that the description on agricultural and rural development in zone B (under the section offsets/trade-offs) should be clarified in the draft EMF.

Mr Adebayo Adetunji raised the issue of granting prospecting rights on agricultural private land. Mr Theunis Meyer indicated that the DMR should confirm the status of the prospecting rights in the GTLM, i.e. have the prospecting rights been withdrawn or are they still valid?

Mr Simon Moganetsi suggested that the involved departments should meet and discuss the process to acquire the GIS data needed for the EMF.

Mr Theunis Meyer explained that the EMF is a decision support tool. The maps supporting the EMF are a representation of the *status quo* and the way in which the DSoE may be reached.

Mr Simon Moganetsi indicated that some of the listed activities under the National Environmental Management Act 108 of 1998 (NEMA) may be downgraded, i.e. from an environmental impact assessment (EIA) required to be conducted to a basic assessment requirement. This may hold implications for the EMF.

Mr Simon Moganetsi suggested that the description "screening for an EIA" should be changed to "screening for an environmental authorisation". He further suggested that the strategic context must be placed upfront.

Mr Theunis Meyer indicated that a key challenge for the EMF is that of defining the urban area/edge, since the listed activities under the NEMA explicitly refers to the urban area/edge.

Mr Theunis Meyer concluded the meeting by further addressing the following agenda items by means of a PowerPoint presentation.

6. Alignment between the draft EMF and SDF

Refer to the road ahead (point 7 below) for detail on the scheduling of a workshop where the alignment between the EMF and the SDF should be further discussed.

7. Current status of the project and the road ahead

Mr Theunis Meyer indicated that two workshops should be held.

He indicated that, at the first workshop, the decision support tool/matrix should be refined (the workshop team should work through each activity). The possibility of the delisting of activities should also be discussed at this workshop. Mr Simon Moganetsi and his team from the DEA, Mr Adriaan van Straaten and the NWREAD team dealing with EIAs and planning, Mr Magezi Mhlanga and his team from the DRDLR and Mr Ipeleng Wezi and his team from the DMR together with the project team from the CEM and the NWU should all attend this workshop.

At the second workshop the alignment between the EMF and the SDF should be further discussed. Mr Simon Moganetsi and his team from the DEA, Mr Adriaan van Straaten and the NWREAD team dealing with EIAs and planning, Mr Magezi Mhlanga and his team from the DRDLR and the consultant from J&G consulting together with the project team from the CEM and the NWU should all attend this workshop.

Both of the aforementioned meetings should take place before the end of May 2015 in either Potchefstroom or Pretoria.

Mr Theunis Meyer indicated that the final version of the EMF should be presented to the project steering committee (PSC). The final version must then be signed off. Thereafter, the final version of the EMF should be made available to the public. An advertisement announcing that the EMF is in the public domain should be placed in a newspaper. Lastly, the EMF should be gazetted. Mr Theunis Meyer further indicated that the project should be concluded by July 2015.

8. Additional discussion points

No additional discussion points were added to the agenda.

9. Closing

Mr Theunis Meyer concluded the meeting by thanking all involved for their time and valuable contributions.

Annexure 1: Attendance register






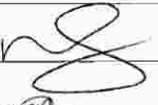



Attendance register for the Greater Taung Local Municipality (GTLM) Environmental Management Framework (EMF) key stakeholder meeting

Venue: CEM, Potchefstroom
DATE : Tuesday, 12 May 2015
TIME: 10:00

Name:	Company:	E-mail Address:	Cellphone Number:	Telephone Number:	Signature:
Abel Mocoiri	NW READ, DR RSM District Services	AMocoiri@nwpg.gov.za	0718624317	0539741975	
Adebayo Adetunji	J&G Consultant	adebayoa@jgconsultant.co.za	073 608 6165	012 361 1051	
Adriaan van	NW READ, IEM	AvanStraaten@nwpg.gov.za	082 589 2054	018 389 5054	








Attendance register for the GTLM EMF key stakeholder meeting

Page 1 of 5

Name:	Company:	E-mail Address:	Cellphone Number:	Telephone Number:	Signature:
Straaten					
Bando Gaven	NW READ, Taung Skull WHS	mgaven bgaven@nwpg.gov.za	082 927 9085	018 389 5345	
Bradley Nethononda	DEA	bnethononda@environment.gov.za	072 683 2873	012 399 9318	
Dirk Cilliers	NWU CEM		084 517 7921	—	
Ipeleng Wezi	DMR	ipeleng.wezi@dmr.gov.za		018 487 9830 (old number)	
Johan Nel	NWU CEM	johan.nel@nwu.gov.za	083 271 0876		
John Dire	NW READ, DR RSM District Services	JDire@nwpg.gov.za	083 274 9846	053 928 0625	
Khanyiso Mtolo	DEA	kmtolo@environment.gov.za	084 696 533	012 399 8848	
Magezi Mhlanga	DRDLR	magezi.mhlanga@drdlr.gov.za	079 515 1167 071 853 1227	012 312 8668	

Attendance register for the GTLM EMF key stakeholder meeting

Page 2 of 5

Name:	Company:	E-mail Address:	Cellphone Number:	Telephone Number:	Signature:
Makhlum Mothoa	GTLM	mothoam@taunglm.co.za	079 431 9543	053 994 9453	
Marijke van Heerden	NW COGTA	MvanHeerden@nwpg.gov.za	082 805 6872		
Ms. Malefyaane Mosadi	NW READ, IEM	mamosadi@nwpg.gov.za mosadi@nwpg.gov.za	081 3044 891	012-709 1274	
Ms. Rhulani Mathebula	NW READ, IEM	rmathebula@nwpg.gov.za	083 435 0688	018 389 5102	
Ngodiseni Musetha	DRDLR	ngodiseni.musetha@drdlr.gov.za	082 373 9679	012 312 8668	
Phumudzo Nethwadzi	DMR	phumudzo.nethwadzi@dmr.gov.za	0824670886	018 487 3000 (new number) 4300	
Pieter Swart	DMR	pieter.swart@dmr.gov.za	0824581404	018 487 3000	
Sam Dagane	DRDLR	sam.dagane@drdlr.gov.za	082 827 0625	018 397 7640	
Schalk Vorster	Disaster Management	svorster@nwpg.gov.za			
Montoluleko Myeza	DLGd HS	nkhango@nwpg.gov.za	019 990 3109	018 388 2142	

Attendance register for the GTLM EMF key stakeholder meeting

Page 3 of 5

Greater Taung Local Municipality Environmental Management Framework – November 2015

Name:	Company:	E-mail Address:	Cellphone Number:	Telephone Number:	Signature:
Simon Moganetsi	DEA	smoganetsi@environment.gov.za	082 9063070 072 885 2075	012 399 9309	
Sinoxolo Jali	DRDLR	sinoxolo.jali@drdlr.gov.za		012 312 8668	
Siyabonga Zondi	DEA	szondi@environment.gov.za	0726857293	012 399 9316	
Tharina Boshoff	NW READ, Environmental Planning & Coordination	tboshoff@nwpg.gov.za			
Thebe Mamakoko	Dept Energy	Thebe.Mamakoko@energy.gov.za	0794998901		
Theunis Meyer	NWU CEM	THEUNIS.MEYER@NWU.AC.ZA	083 6270637	018 299 14 67	
Thuso Morake	DRDLR	thuso.morake@drdlr.gov.za	073 686 5360 072 782 9449	018 397 7640	
HUMBELANI MASHALI	GTLM	mashali@taunglm.co.za	0781324430	063 994 9453	
Livhuwani Tshikate	DMR	livhuwani.tshikate@dmr.gov.za	082 939 8588	018 487 4300	
Robert Nemanashi	NW READ	nemanashi@nwpg.gov.za	076 604 5346	018 299 6696	

Attendance register for the GTLM EMF key stakeholder meeting

Page 4 of 5

Name:	Company:	E-mail Address:	Cellphone Number:	Telephone Number:	Signature:
Adeola AM	J&G Consultants	adeola@jgconsultants.co.za	0833717253		
NGOBENI Tiv	DRDLR	thandekangobeni@dirdlr.gov.za	072 710 5135	018 397 7645	
Lesego Marima	DRDLR	Lesego.Marima@dirdlr.gov.za	076 9329 794	018 397 7645	
THANYANI MUSTAOU	DRDLR	thanyani.mustaou@dirdlr.gov.za	076 546 7708	012 812 9579	
Siphwe Prakatli	DRDLR	Siphwe.Prakatli@dirdlr.gov.za	083 8900 789	012 312 9801	
Musetha NS	DRDLR	ngadisenio.musethe@dirdlr.gov.za	082 3739879	012 312 9435	
Simone van Ruyen	CEM	20861114@nwu.ac.za	072 666 5201	018 244 1098	
Phatwe Mkhuraho	CEM - NWU	26584484@nwu.ac.za	0794063812	018 279 1448	
SCHALK VORSTER	READ	svorster@nwpp.gov.za	0834431638	018-3895405	
Bando Gaven	READ	mgaven@nwpp.gov.za	0829279085	018 389 5345	
WALLY MITCHELL	READ	wally@nwpp.gov.za	082 806 5841	018 389 5985	

Attendance register for the GTLM EMF key stakeholder meeting

Addendum 7: Minutes of focus group meeting with key stakeholders, held on 11 June 2015 at the North-West University, Potchefstroom



Minutes of the Greater Taung Local Municipality (GTLM) Environmental Management Framework (EMF) Key Stakeholder Meeting

Meeting:	GTLM EMF Key Stakeholder Meeting
Date of meeting:	Thursday, 11 June 2015
Time of meeting:	10:00
Meeting room:	CEM, North-West University (NWU), Potchefstroom

1. Opening and welcoming

Mr Theunis Meyer from the CEM welcomed all and allowed everyone to briefly introduce themselves.

2. GTLM Draft EMF

Mr Theunis Meyer and Mr Dirk Cilliers provided background on the project by means of a PowerPoint presentation.

2.1 Critical reflection on the spatial representation of the desired State of the Environment

2.2 Critical reflection on the revised Environmental Management Zones

Naming convention issues:

- **Linear zone:** the NWU should reflect on the use of the term Linear in the description of a zone. This is currently only referring to roads. Suggestion: *infrastructure development zone*.
- **Rural development zone:** Consider changing this to *rural-urban development* or *human settlement zone* or *existing cultivate areas*.
- **Mixed use development zone:** Reconsider the name.
- **Biodiversity zone:** Ecological infrastructure and its definition needs to be considered. Also consider the national policy.
- **Definitions and zones** should be reflected on carefully. It should be kept in mind that non-technical people will ultimately use the tool.
- **Decision:** if the name change adds value and is logical, it will be used/changed. Mr Theunis Meyer requested the assistance of the DRDLR, NWREAD and other members present.
- **Final decision:** The spatial representation are accepted, NWU needs to reflect on the naming convention. Names should be less contentious but still aligned with the SDF.

2.3 Critical reflection on the Decision support tool

A suggestion was made that a meeting must be held with the municipality to discuss alignment with the Land Use Scheme. Mr Theunis Meyer replied that in theory, this is a good idea, however the project only allows for alignment with the SDF.

Mr Enoch Mhlanga replied that the alignment of the EMF and SDF with the Land Use Scheme should be recommended in the final report. Possible alignment with Development Procedure Processes must also be mentioned.

2.4 Critical reflection on guidelines / norms and standards

Emphasis was placed on the fact that **recommendations** for de-listing will be made, and not the actual de-listing of activities.

In principle, the way the NWU approaches the EMF is not in conflict with what DEA and NWREAD have in mind.

All parties agreed to review the document and provide input on the approach.

3. Alignment between the draft EMF and SDF

A workshop must be held with DEA and the SDF service provider to test and agree on alignment. This workshop will be held in the week of 6 July 2015 in Pretoria at the DEA offices. The municipality should also be invited to attend this workshop.

4. Current status of the project and the road ahead

The final version of the EMF should be ready for presentation by early July 2015. The Public Participation Process will then start, with expected conclusion of the project at the end of August 2015.

Mr Theunis Meyer will send out invitations for the workshop planned for the week of 6 July 2015.

In the meantime, delegates from DEA, DRDLR and DWREAD will analyse and scrutinise the document. .

5. Additional discussion points

User interface: Mr Dirk Cilliers explained the purpose and benefits of the User Interface. The costs for the development of this tool have not been added to the initial quotation. Without the User Interface, only skilled people will be able to use the tool. It will ultimately benefit the end-user, and effectiveness of the tool will increase.

It was suggested that a description of the User Interface must be included in the final report, for future consideration by the relevant authorities.

6. Closing

Mr Theunis Meyer concluded the meeting by thanking all involved for their time and valuable contributions.



Annexure 1: Attendance register



Attendance register for the Greater Taung Local Municipality (GTLM) Environmental Management Framework (EMF) key stakeholder meeting









Venue: CEM, Potchefstroom
DATE : Thursday, 11 June 2015
TIME: 10:00

Name:	Company:	E-mail Address:	Cellphone Number:	Telephone Number:	Signature:
Adriaan van Straaten	NW READ, IEM	AvanStraaten@nwpg.gov.za	082 389 2054	018 389 5054	
Bradley Nethononda	DEA	bnethononda@environment.gov.za			

Attendance register for the GTLM EMF key stakeholder meeting

Page 1 of 3

Greater Taung Local Municipality Environmental Management Framework – November 2015

Name:	Company:	E-mail Address:	Cellphone Number:	Telephone Number:	Signature:
Dirk Cilliers	NWU CEM	dirk.cilliers@nwu.ac.za	084 517 7970		
Ellis Thebe	NW READ, IEM	gethebe@nwpg.gov.za	082 280 595 91	018 389 5099	
Robert Nemanashi	NW READ, IEM	rnemanashi@nwpg.gov.za	076 604 5346	(018) 299 6696	
Motshabi Mohlali	NW READ, IEM	mmohlali@nwpg.gov.za	072 157 8434	014 597 3597	
Khanyiso Mtolo	DEA	kmtolo@environment.gov.za	084 694 4533 862	012 399 8848	
Ms. Malefyane Mosadi	NW READ, IEM	mosadim@nwpg.gov.za mmosadi@nwpg.gov.za	081 3044 891	07 709 2822	
Simon Moganetsi	DEA	smoganetsi@environment.gov.za	072 683 2873	012 399 9309	
Siyabonga Zondi	DEA	szondi@environment.gov.za	072 683 7297	012 399 9316	
Theunis Meyer	NWU CEM				
Thuso Morake	DRDLR	thuso.morake@drdlr.gov.za	073 686 5360	018 397 7640	

Attendance register for the GTLM EMF key stakeholder meeting

Page 2 of 3

Minutes of the GTLM EMF key stakeholder meeting

Rev2015-03

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Name:	Company:	E-mail Address:	Cellphone Number:	Telephone Number:	Signature:
Francois Retief	NWU	Francois.retief@nwu.ac.za	083 689 2293	018 299 1586	
LINHUWANI TSHILATE	DMR	linhuwani.tshilate @dmr.gov.za	082 939 8588	018 487 4341	
Tshukela Phalala	DMR	Tshukela.Phalala@dmr. gov.za	083 877 7350	018 487 4200	
Nephawe M	DMR	Mbavhalelo.nephawe@dmr. gov.za	N/A	018 487 4300	
Nanda Hofmeyr	NWU-CEM	nanda.hofmeyr@nwu.ac.za	083 794 6134	018 299 1590	
Mulanga M	DRDLR	Magezi.mulanga@drdlr. gov.za	011 853 1227	013 312 8668	
KHATHU	DRDLR	KHATHU.MURIBA@DRDLR. gov.za	0813169062	012 512 8663	
THANYANI MUSHADU	DRDLR	Thanyani.mushadu@drdlr. gov.za	076 346 7708	012 312 7959	

Attendance register for the GTLM EMF key stakeholder meeting

Page 3 of 3

Addendum 8: Newspaper advertisements placed in English, Afrikaans and Setswana in the local Stellalander newspaper to inform all stakeholder groups of public meetings to provide feedback on and discuss the draft Environmental Management Framework

**GREATER TAUNG LOCAL MUNICIPALITY ENVIRONMENTAL MANAGEMENT FRAMEWORK (EMF)
PUBLIC PARTICIPATION PROCESS: NOTICE OF AVAILABILITY OF FINAL EMF REPORT AND PUBLIC CONSULTATION PROCESS**

The Department of Rural Development and Land Reform has contracted the Centre for Environmental Management to develop an Environmental Management Framework (EMF) for the Greater Taung Local Municipality. The purpose of the EMF is to provide appropriate information on environmental sensitivities as a support mechanism for the evaluation, review and decision-making of development applications by the Greater Taung Municipality and the competent authority in the Environmental Impact Assessment (EIA) process, as well as to inform the Greater Taung Spatial Development framework. EMFs also provide developers with an early indication of the areas in which it would be appropriate to undertake specific development activities and the environmental sensitivities to consider, and facilitate co-operative government. The Greater Taung Municipality EMF has been developed and the final EMF report is available for public review and comment. Copies can be obtained from the Taung Public library, town planning department at the Greater Taung Local Municipality, as well as the Reivilo Farmers Union, tel 053 953 0100. The project team will also provide feedback and invite comments at a public meeting.

Date: Thursday, 28 January 2016
Time: 10:00
Venue: To be confirmed

All interested and affected parties are hereby invited to review the report and attend the meeting. Please contact Simoné Kriek if you require a copy of the final EMF report or if you are interested to attend the meeting, tel: 018 299-1448 or e-mail: 20801114@nwu.ac.za.
Date of advertisement: 2/4 December 2015

**GROTER TAUNG PLAASLIKE MUNISIPALITEIT
OMGEWINGSBESTUURSRAAMWERK (EMF) PUBLIEKE
DEELNAMEPROSES: KENNIS VAN BESKIBAARHEID VAN DIE FINALE
EMF-VERSLAG, ASOOK PUBLIEKE KONSULTASIEPROSES**

Die Departement van Landelike Ontwikkeling en Grondhervorming het die Sentrum vir Omgewingsbestuur (CEM) aangestel om 'n Omgewingsbestuursraamwerk (EMF) vir die Groter Taung Plaaslike Munisipaliteit te ontwikkel. Die doel van die EMF is om toepasslike inligting oor omgewings sensitiwiteite te voorsien as ondersteuningsmeganisme vir die evaluering, hersiening en besluitneming van ontwikkelingsaansoeke deur die Groter Taung Plaaslike Munisipaliteit en die aangewese owerheid in die Omgewingsimpak-assesseringsproses (EIA), asook vir oorweging tydens die ontwikkeling van die Groter Taung Ruimtelike Ontwikkelingsraamwerk (SDF). EMFs voorsien ook aan ontwikkelaars vroeë aanduiding van gebiede waarin dit potensieel gepas mag wees om bepaalde ontwikkelings te onderneem, asook die omgewings sensitiwiteite om te oorweeg, en bevorder gesamentlike besluitneming. Die Groter Taung Plaaslike Munisipaliteit EMF is ontwikkel en die finale EMF-verslag is beskikbaar vir openbare insae en kommentaar. Kopieë is beskikbaar by die Taung openbare biblioteek, stadsbeplanningsafdeling van die Groter Taung plaaslike munisipaliteit, sowel as die Reivilo Boere-unie, tel 053 953 0100. Die projekspan sal ook terugvoer verskaf en kommentaar versoek tydens 'n publieke vergadering.

Datum: Donderdag, 28 Januarie 2016
Tyd: 10:00
Venue: Sal bevestig word.

Alle geïnteresseerde en geaffekteerde partye word hiermee uitgenooi om die verslag te bestudeer en die vergadering by te woon. Kontak asseblief vir Simoné Kriek indien u 'n kopie van die finale EMF-verslag wil bekom of belangstel om die openbare vergadering by te woon by tel: 018 299-1448 of e-pos: 20801114@nwu.ac.za.
Datum van advertensie: 2/4 Desember 2016

**GREATER TAUNG LOCAL MUNICIPALITY ENVIRONMENTAL MANAGEMENT FRAMEWORK (EMF)
TSAMAISO YA TSEOKAROLO YA SETSHABA: KITSISO YA GO FITLHELEGA GA PEGELO YA BOFELO YA EMF LE TSAMAISO YA TLHABOBOTLHALE YA SETSHABA**

Lefapha la Tlhabolole ya Metseselegae le Phetolo ya Mafatshe le dirile tumaiano le Centre for Environmental Management gore e mamelelelele Environmental Management Framework (EMF) ya Greater Taung Local Municipality. Maikaelelo a EMF ke go fana ka tshedimosetso e e maleba ka ga kamego bonolo ga tikologo jaaka mokgwa wa tshetso ya go tlhathoba, go netefatsa le go tsaya ditshwetso tsa dikopo tsa tlhabolole tse di tseiwang ke Greater Taung Municipality le ke lefapha le le ikarabelang mo tsamaisong ya Environmental Impact Assessment (EIA), le go akaretsa go sedimosetsa Greater Taung Spatial Development framework. Gape di-EMF di tsibosa tlhabolodi pele ga ba simolola ka go tlhabolola gore ba ele tlhoko mafelo a a maleba go dira ditlhabolole tse di kgethegileng le kamego bonolo ga tikologo; le go nolofatsa puso e e dirisanang.

EMF ya Greater Taung Municipality e mameleletswe e bile pegelo ya bofelo ya EMF e ka bonwa gore setshaba se e netefatsa le gore se neele ditshwaelo. Dikgatiso di tla fitlhelwa kwa Taung Public Library, lefapha la town planning mo Greater Taung Local Municipality, le kwa Reivilo Farmers Union, mogala 053 953 0100. Gape sethoba sa projeke se tla ntsha tshobokanyo ya ditshwaelo, mme se tla laletsa ditshwaelo tse dingwe kwa kopanong ya setshaba.

Letha: Labone, 28 Ferikgong 2016
Nako: 10:00
Lefelo: Le tla netefatswa

Botlhe ba ba nang le kgalhego le ba ba amegileng ba lalediwa go netefatsa pegelo le go nna teng kwa kopanong. Re kopa o ikgolaganye le Simoné Kriek fa o batla kgatiso ya pegelo ya bofelo ya EMF kgotsa fa o na le kgalhego ya go nna teng kwa kopanong, mogala: 018 299-1448 or e-mail: 20801114@nwu.ac.za.
Letha la papatso: 2/4 Sedimonthole 2015

Addendum 9: Newspaper advertisements placed in English and Setswana in the national The New Age newspaper to inform all stakeholder groups of public meetings to provide feedback on and discuss the draft Environmental Management Framework

GREATER TAUNG LOCAL MUNICIPALITY ENVIRONMENTAL MANAGEMENT FRAMEWORK (EMF)

PUBLIC PARTICIPATION PROCESS: NOTICE OF AVAILABILITY OF FINAL EMF REPORT AND PUBLIC CONSULTATION PROCESS

The Department of Rural Development and Land Reform has contracted the Centre for Environmental Management to develop an Environmental Management Framework (EMF) for the Greater Taung Local Municipality. The purpose of the EMF is to provide appropriate information on environmental sensitivities as a support mechanism for the evaluation, review and decision-making of development applications by the Greater Taung Municipality and the competent authority in the Environmental Impact Assessment (EIA) process, as well as to inform the Greater Taung Spatial Development framework. EMFs also provide developers with an early indication of the areas in which it would be appropriate to undertake specific development activities and the environmental sensitivities to consider; and facilitate co-operative government.

The Greater Taung Municipality EMF has been developed and the final EMF report is available for public review and comment. Copies can be obtained from the Taung Public library, town planning department at the Greater Taung Local Municipality, as well as the Reivilo Farmers Union, tel 053 953 0100.

The project team will also provide feedback and invite comments at a public meeting.

Date: Thursday, 28 January 2016

Time: 10:00

Venue: To be confirmed

All interested and affected parties are hereby invited to review the report and attend the meeting.

Please contact Simoné Kriek if you require a copy of the final EMF report or if you are interested to attend the meeting, tel: 018 299-1448 or e-mail: 20901114@nwu.ac.za.

TSAMAISO YA TSEOKAROLO YA SETSHABA: KITSISO YA GO FITLHELEGA GA PEGELO YA BOFELO YA EMF LE TSAMAISO YA TLHABOBOTLHALE YA SETSHABA

Lefapha la Tlhabololo ya Metseselegae le Phetolo ya Mafatshe le dirile tumalano le Centre for Environmental Management gore e mametlelele Environmental Management Framework (EMF) ya Greater Taung Local Municipality. Maikaelelo a EMF ke go fana ka tshedimosetso e e maleba ka ga kamego bonolo ga tikologo jaaka mokgwa wa tshetsetso ya go tlhatlhoba, go netefatsa le go tsaya ditshwetso tsa dikopo tsa tlhabololo tse di tseiwang ke Greater Taung Municipality le ke lefapha le le ikarabelelang mo tsamaisong ya Environmental Impact Assessment (EIA), le go akaretsa go sedimosetsa Greater Taung Spatial Development framework. Gape di-EMF di tsibosa bathabolodi pele ga ba simolola ka go tlhabolola gore ba ele tlhoko mafelo a a maleba go dira ditlhabololo tse di kgethegileng le kamego bonolo ga tikologo; le go nolofatsa puso e e dirisanang.

EMF ya Greater Taung Municipality e mametleletswe e bile pegelo ya bofelo ya EMF e ka bonwa gore setshaba se e netefatse le gore se neele ditshwaelo. Dikgatiso di tla fitlhelwa kwa Taung Public Library, lefapha la town planning mo Greater Taung Local Municipality, le kwa Reivilo Farmers Union, mogala 053 953 0100.

Gape sethopa sa projeke se tla ntsha tshobolokanyo ya ditshwaelo, mme se tla laletsa ditshwaelo tse dingwe kwa kopanong ya setshaba.

Letha: Labone, 28 Ferikgong 2016

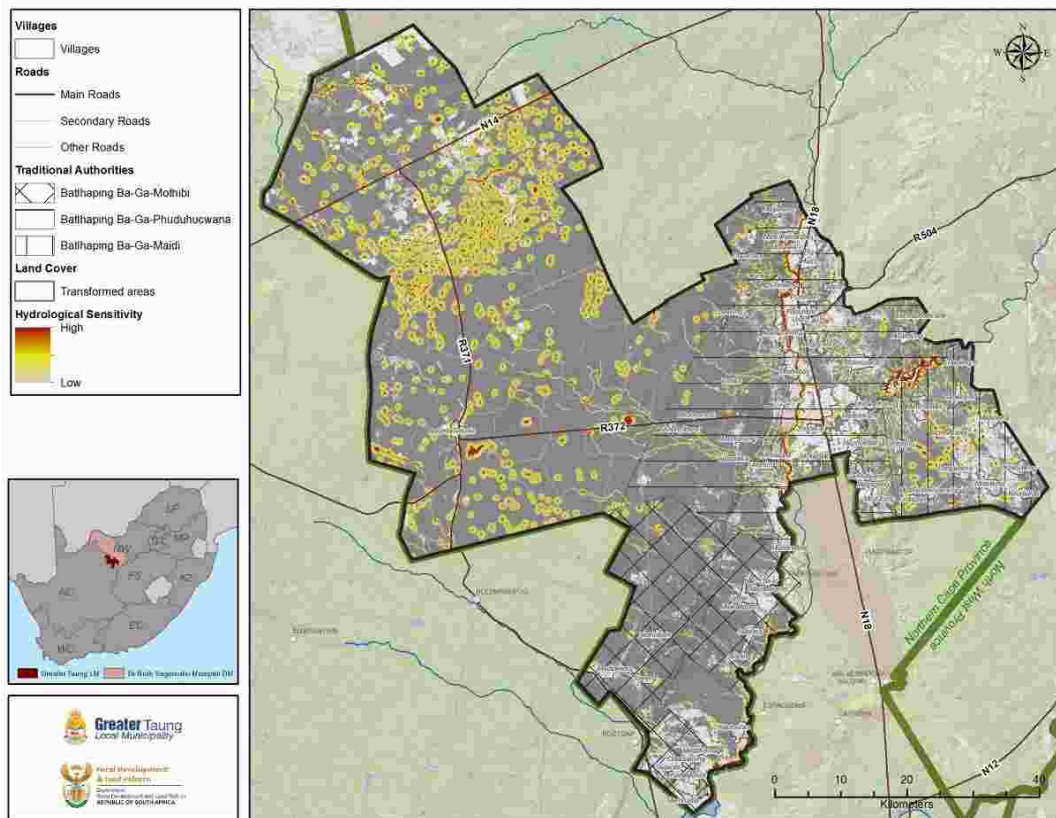
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Lefelo: Le tla netefatswa

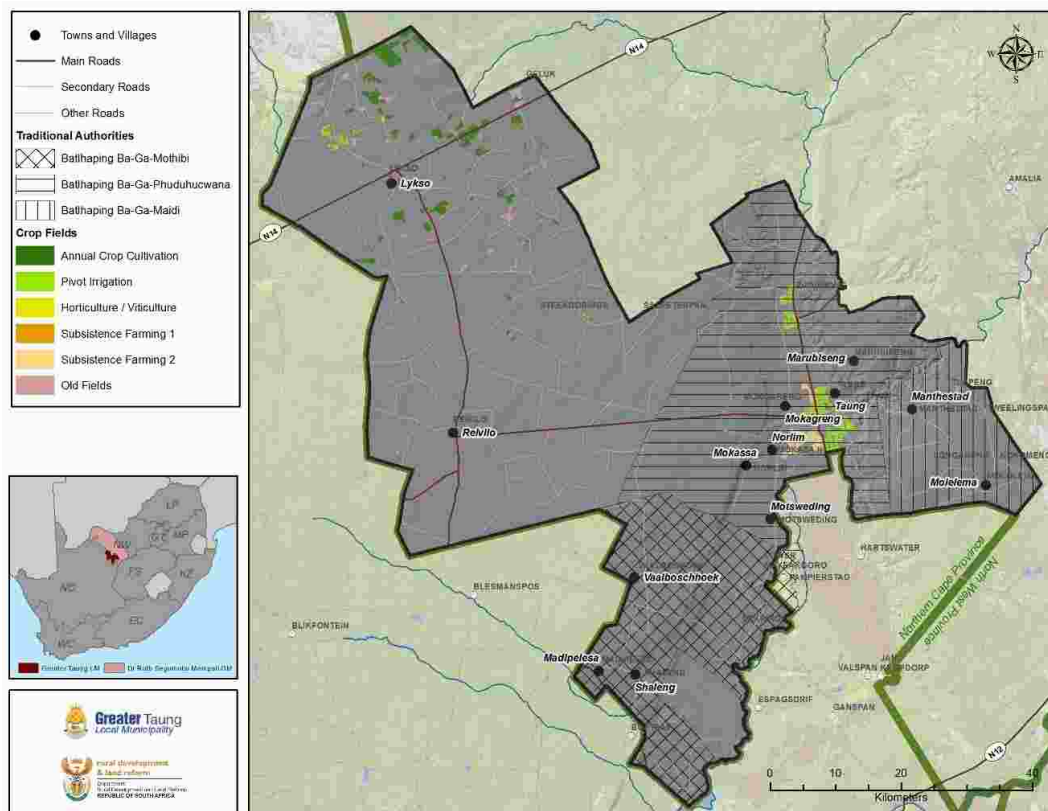
Botlhe ba ba nang le kgethego le ba ba amegileng ba lalediwa go netefatsa pegelo le go nna teng kwa kopanong.

Re kopa o ikgolaganye le Simoné Kriek fa o batla kgatiso ya pegelo ya bofelo ya EMF kgotsa fa o na le kgethego ya go nna teng kwa kopanong, mogala: 018 299-1448 or e-mail: 20901114@nwu.ac.za.

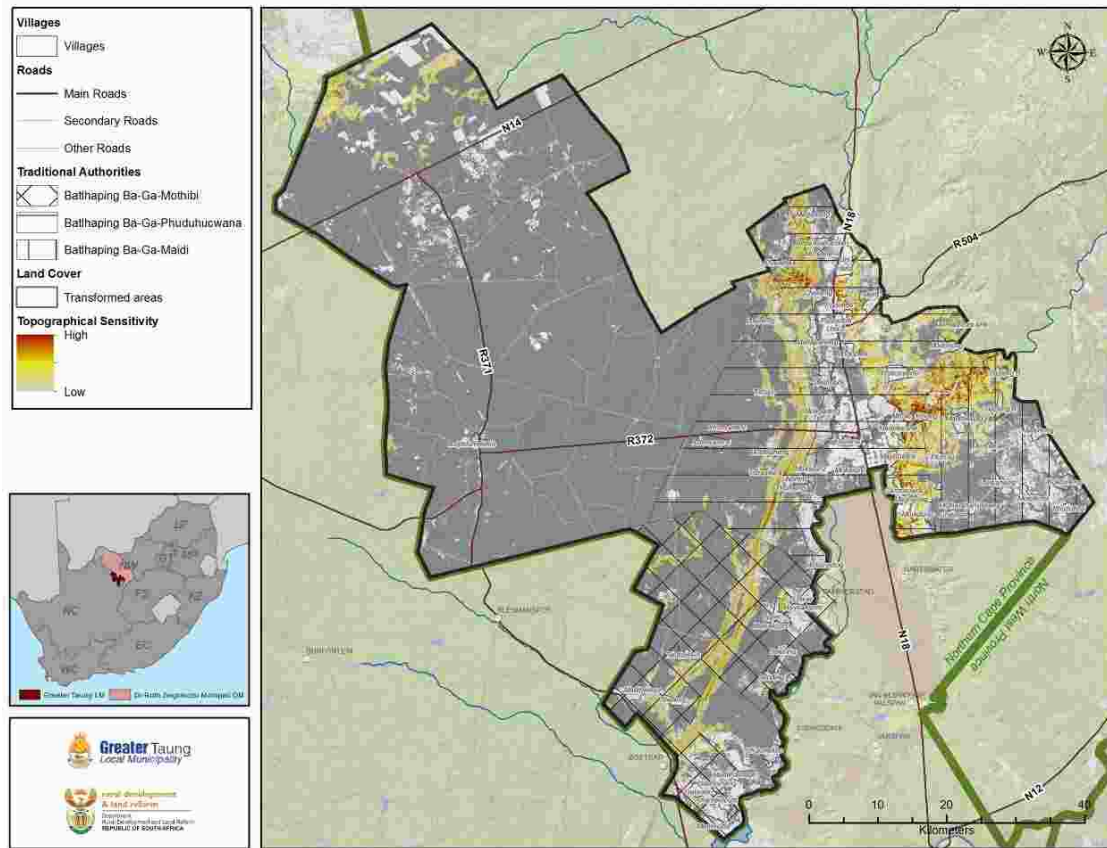
Addendum 10: GTLM Environmental constraints maps



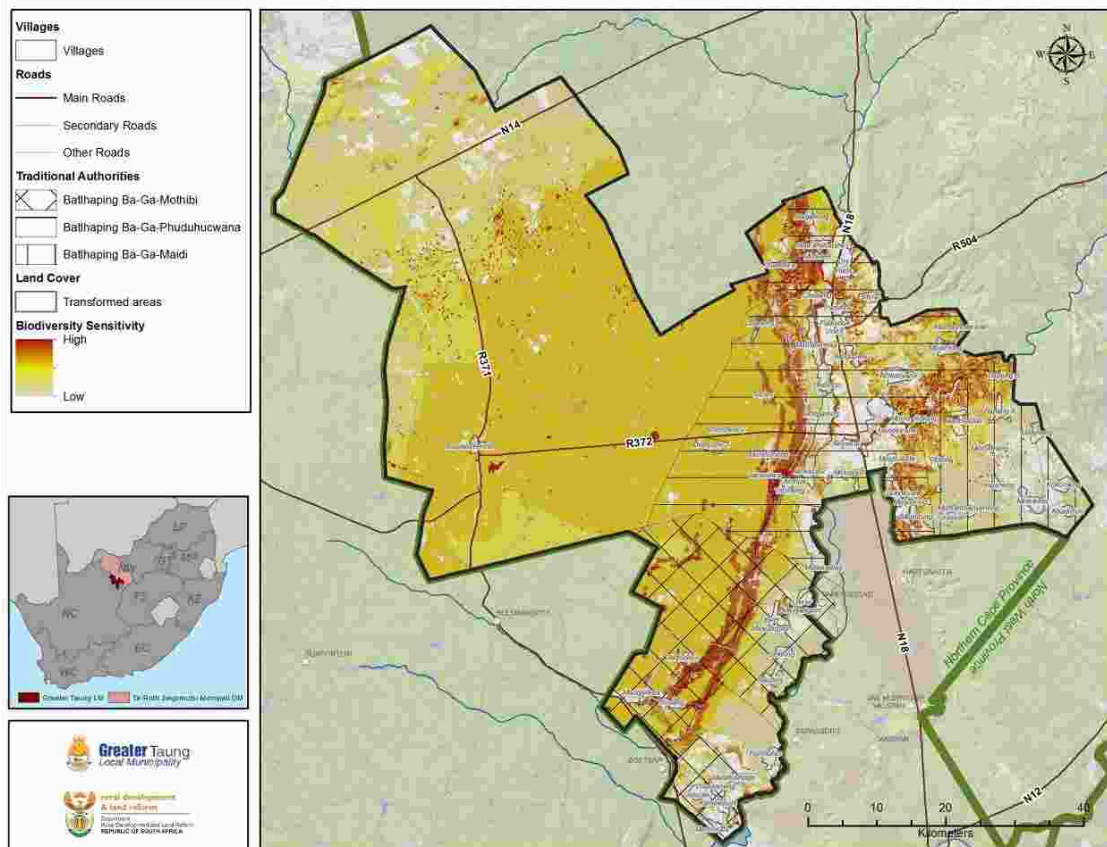
Spatial representation of hydrological sensitivity in the GTLM



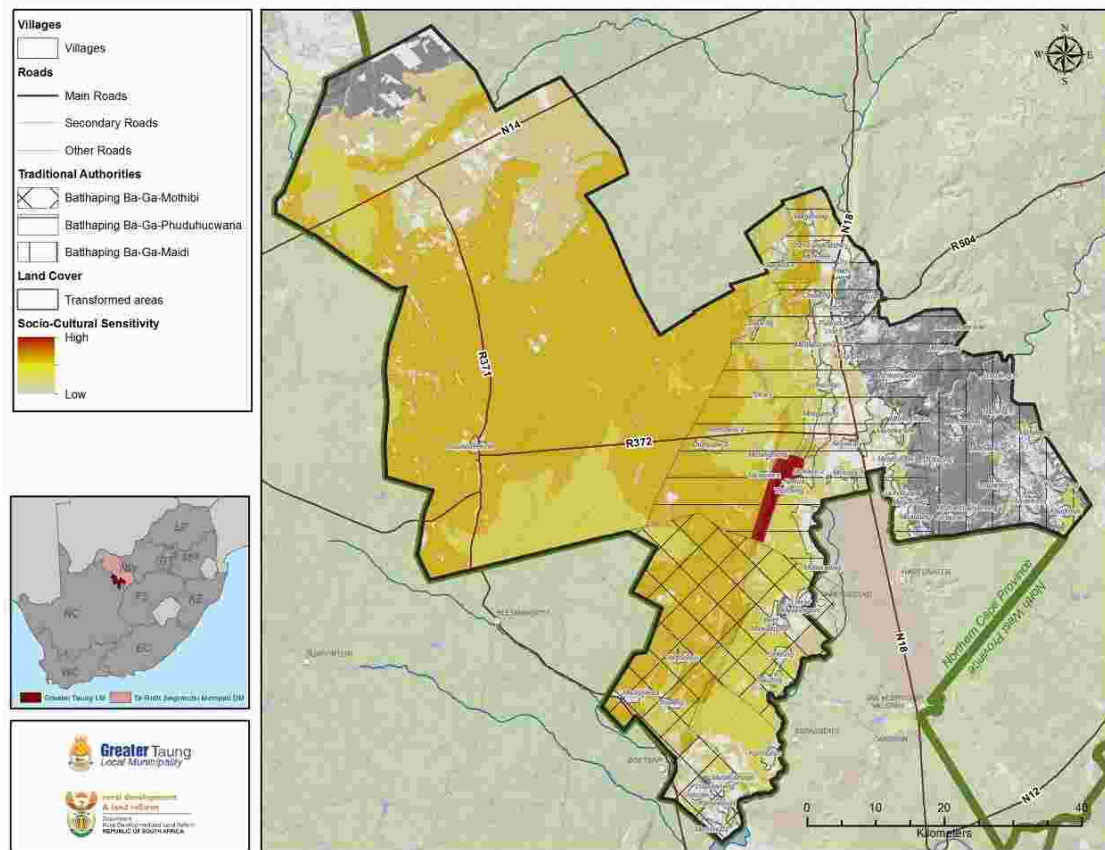
Spatial representation of agricultural sensitivity in the GTLM



Spatial representation of topographical sensitivity in the GTLM

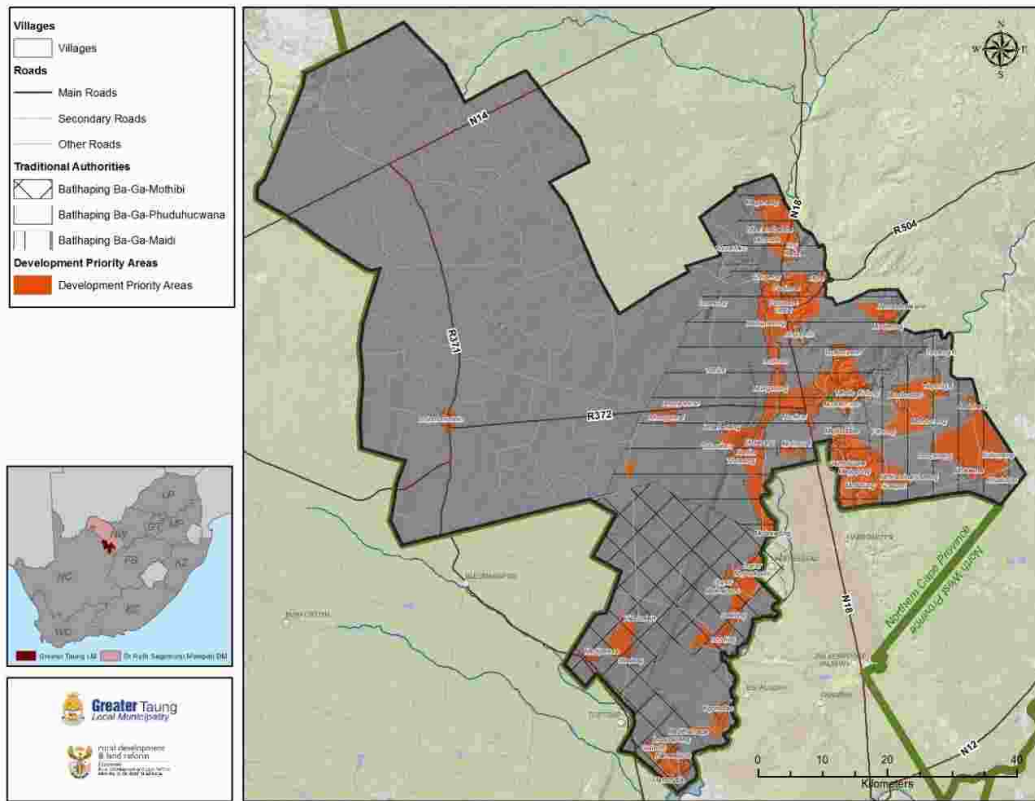


Spatial representation of biodiversity sensitivity in the GTLM

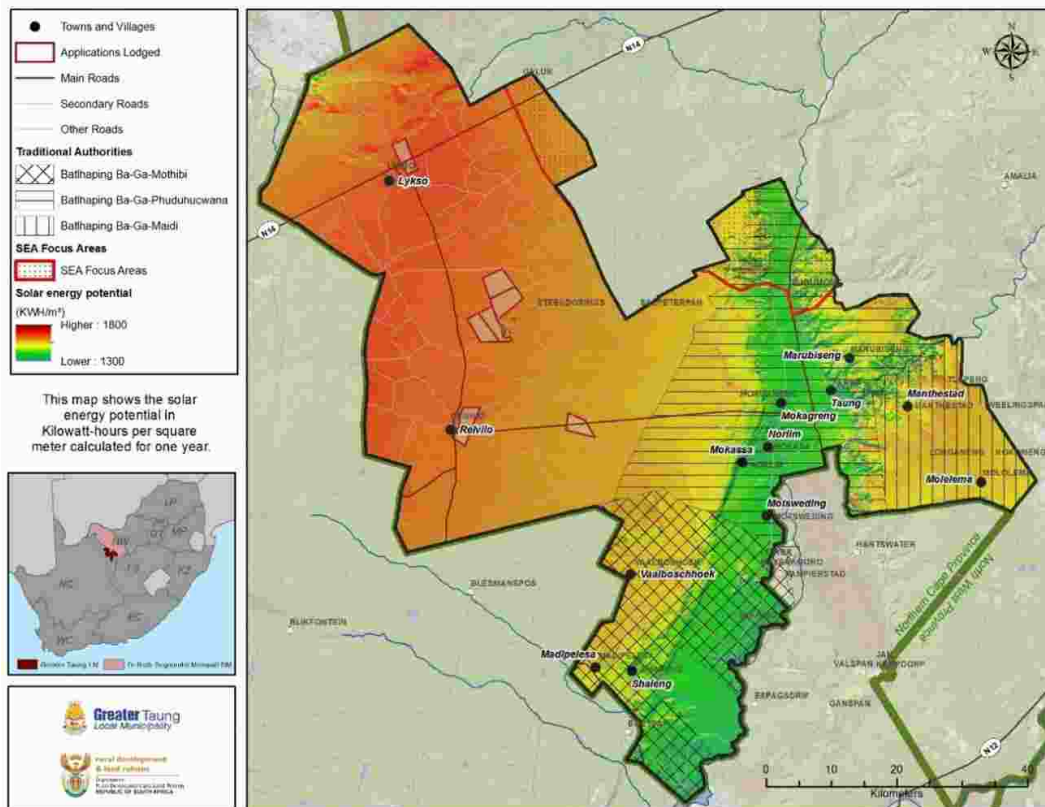


Spatial representation of socio-cultural sensitivity in the GTLM

Addendum 11: GTLM Environmental opportunities maps

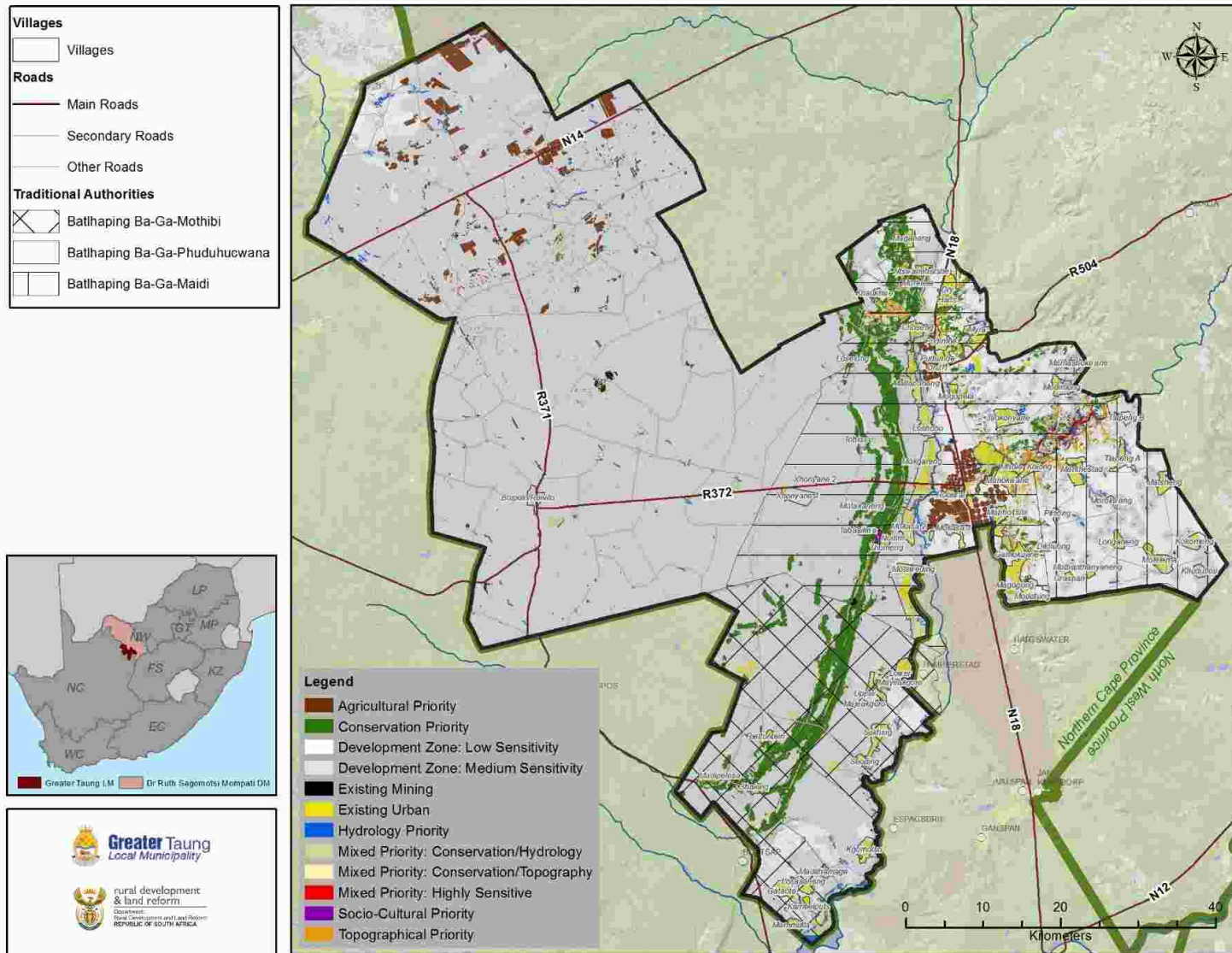


Spatial representation of development potential in the GTLM

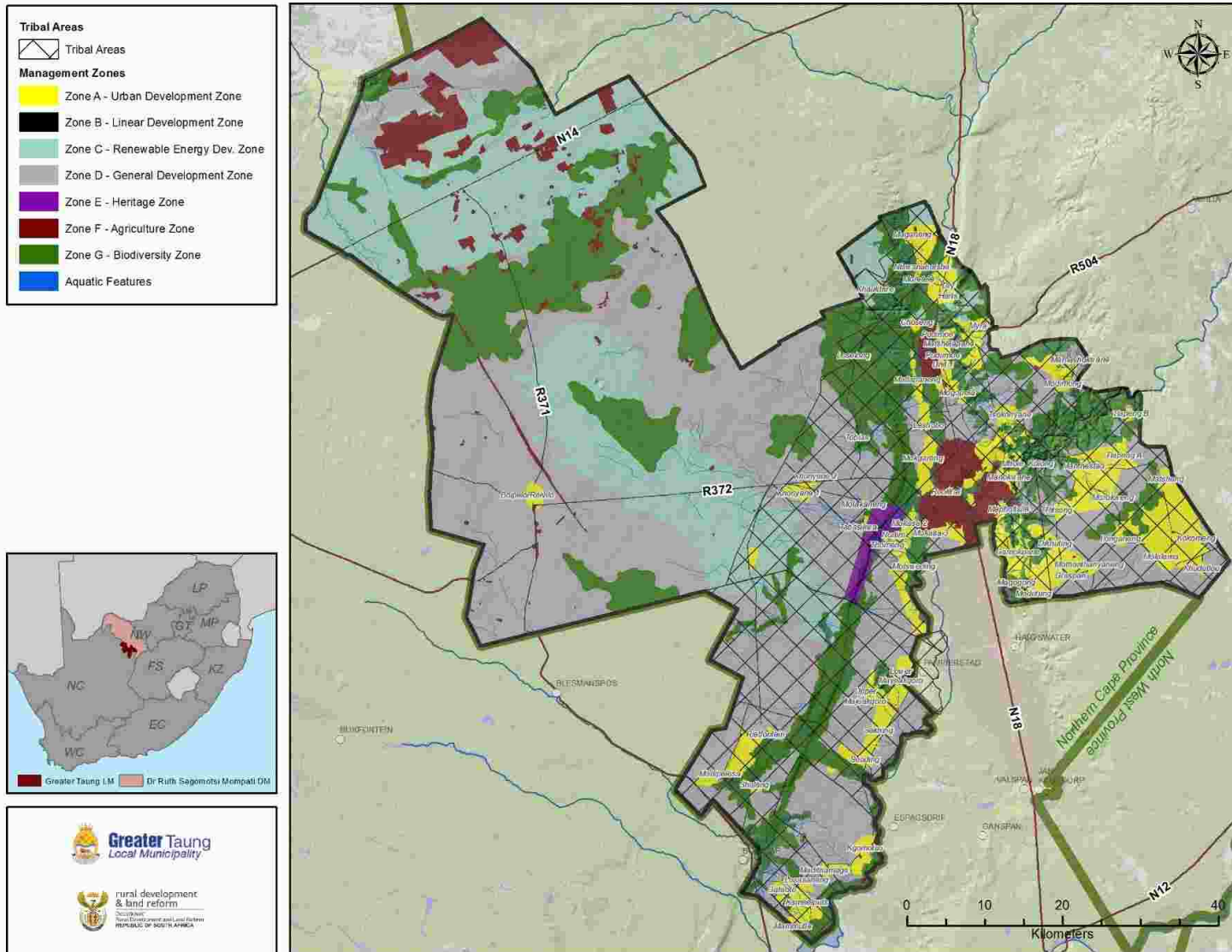


Spatial representation of refined solar potential in the GTLM

Addendum 12: GTLM Spatial representation of the Desired State of the Environment



Addendum 13: GTLM Environmental Management Zones



Addendum 14: GTLM EMF Decision support matrix

EMF Theme	Applicable activities	Air pollution issues							Site Specific Environmental constraints/opportunities	Zones (Colours as on 'Management Zones' map)							
		Nuisance issues (odours)	Noise related issues	Visual issues	Traffic impact issues	Geotechnical issues	Heritage (archaeological & palaeontological) impacts	Socio-economic impacts		Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone	
ENERGY GENERATION ACTIVITIES																	
Electricity generation infrastructure																	
Facilities/infrastructure for non renewable electricity generation	GNR 983: 2 GNR 983: 37 GNR 984: 2	A	A	A	A	A	A	A	A	Site specific report	I	I	C	C	I	I	I
Facilities/infrastructure for renewable electricity generation	GNR 983: 1 GNR 983: 36 GNR 984: 1				A		A	A	A	Site specific report	I	I	E (see C-1)	C	I	I	I
Facilities involving nuclear reactions																	
Facilities involving nuclear reactions	GNR 984: 3 GNR 984: 29			A	A	A	A	A	A	Site specific report	I	I	I	P	I	I	I
STORAGE FACILITIES/INFRASTRUCTURE																	
Water storage dams and reservoirs (off-stream)																	
Reservoirs for bulk water supply	GNR 985: 2 GNR 985: 16				A		A	A		Site specific report	E (see A-1)	I	C	C	I	P	I
Infrastructure for the off-stream storage of water	GNR 983: 13 GNR 983: 50						A	A		Site specific report	I	I	C	C	I	P	I
Facilities/infrastructure for storage & handling of DGs																	
Storage and handling of dangerous goods	GNR 985: 10 GNR 985: 22 GNR 983: 14 GNR 983: 51 GNR 984: 4	A					A	A	A	Site specific report	E (see A-2)	I	C	C	I	P	I

Greater Taung Local Municipality Environmental Management Framework – November 2015

EMF Theme	Applicable activities	Air pollution issues	Nuisance issues (odours)	Noise related issues	Visual issues	Traffic impact issues	Geotechnical issues	Heritage (archaeological & palaeontological) impacts	Socio-economic impacts	Site Specific Environmental constraints/opportunities	Zones (Colours as on 'Management Zones' map)						
											Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone
POWER LINES & PIPELINES																	
Electricity distribution infrastructure																	
Electricity distribution infrastructure	GNR 983: 11 GNR 983: 47 GNR 984: 9				A			A		Site specific report	E (see A-3)	E (see B-1)	C	C	P	I	I
Pipelines and associated infrastructure																	
Pipelines for bulk transportation of DGs	GNR 984: 7 GNR 983: 60				A		A	A	A	Site specific report	C	P	C	C	I	I	I
Pipelines for bulk transportation of water or storm water	GNR 983: 9 GNR 983: 45				A		A	A		Site specific report	E (see A-4)	E (see B-2)	P	P	P	P	I
Pipelines for bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes	GNR 983: 10 GNR 983: 46				A		A	A	A	Site specific report	E (see A-5)	E (see B-3)	C	C	P	I	I
Facilities/infrastructure for the transfer of large volumes of water	GNR 984: 11 GNR 983: 63				A		A	A		Site specific report	C	I	C	C	I	I	I
TRANSPORT INFRASTRUCTURE																	
Road construction	GNR 983: 24 GNR 985: 4 GNR 985: 18 GNR 983: 56 GNR 984: 27	A			A		A	A	A	Site specific report	E (see A-6)	E (see B-4)	C	C	P	P	I
Outdoor tracks of routes for motor powered vehicles	GNR 985: 11 GNR 985: 21	A			A			A		Site specific report	E (see A-7)	I	P	C	I	I	I
Railway lines	GNR 984: 12 GNR 983: 64				A		A	A	A	Site specific report	C	C	C	C	I	I	I
Cable ways & zip lines or foefieslides	GNR 985: 8 GNR 985: 20 GNR 985: 9 GNR 985: 25				A			A		Site specific report	E (see A-8)	I	C	C	P	I	P
Airports/airfields	GNR 985: 7 GNR 985: 19 GNR 984: 8 GNR 983: 61				A		A	A	A	Site specific report	P	I	C	C	I	I	I

Greater Taung Local Municipality Environmental Management Framework – November 2015

EMF Theme	Applicable activities	Impacts							Site Specific Environmental constraints/opportunities	Zones (Colours as on 'Management Zones' map)								
		Air pollution issues	Nuisance issues (odours)	Noise related issues	Visual issues	Traffic impact issues	Geotechnical issues	Heritage (archaeological & palaeontological) impacts		Socio-economic impacts	Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone	
INDUSTRIAL ACTIVITIES																		
Refining, extraction or processing of gas, oil or petroleum products	GNR 984: 5	A	A	A	A	A	A	A	A	Site specific report	C	I	C	C	I	I	I	
	GNR 983: 59																	
Activities requiring permits of licenses in terms of legislation governing the release of emissions or pollution	GNR 983: 34	A	A					A	A	A	Site specific report	C	I	C	C	I	P	I
	GNR 984: 6																	
	GNR 984: 28																	
Agri-industrial activities	GNR 983: 8		A	A				A	A	A	Site specific report	I	I	C	C	I	E (see F-1)	I
	GNR 983: 43																	
Abattoirs	GNR 983: 3		A					A		A	Site specific report	C	I	P	P	I	P	I
	GNR 983: 38																	
ACTIVITIES WITHIN A WATERCOURSE OR WITHIN 32M OF A WATERCOURSE																		
Dams	GNR 983: 66							A	A		Site specific report	P	N	N	N	N	N	N
	GNR 984: 16																	
Construction of infrastructure within a watercourse or within 32m of a watercourse	GNR 983: 12										Site specific report	P	N	N	N	N	N	N
	GNR 983: 48																	
	GNR 985: 14				A			A	A									
	GNR 985: 23																	
Dredging, excavation, removal or depositing of material	GNR 983: 49										Site specific report	I	N	N	N	N	N	N
	GNR 983: 19							A	A									
GNR 984: 24																		
AGRICULTURE RELATED ACTIVITIES																		
Concentration of animals for commercial production	GNR 983: 4		A								Site specific report	I	I	C	C	I	C	I
	GNR 983: 39																	
	GNR 983: 5																	
	GNR 983: 40																	

EMF Theme	Applicable activities	Air pollution issues							Site Specific Environmental constraints/opportunities	Zones (Colours as on 'Management Zones' map)							
		Nuisance issues (odours)	Noise related issues	Visual issues	Traffic impact issues	Geotechnical issues	Heritage (archaeological & palaeontological) impacts	Socio-economic impacts		Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone	
E: Possible exemption																	
C: Compatible																	
P: Potentially Compatible																	
I: Incompatible																	
N: Not applicable																	
A: Applicable generic issues																	
AQUACULTURE RELATED ACTIVITIES																	
Fresh water aquaculture	GNR 985: 13								Site specific report	I	I	P	P	I	P	I	
	GNR 985: 24																
	GNR 983: 6					A	A										
	GNR 983: 41																
CEMETERIES																	
Cemeteries	GNR 983: 23					A	A	A	A	Site specific report	C	I	I	P	I	I	I
	GNR 983: 44																
TOURISM RELATED ACTIVITIES																	
Small hotels	GNR 985: 5			A		A	A	A	A	Site specific report	E (See A-9)	I	P	C	P	P	P
Large hotels, lodges and resorts	GNR 985: 6			A		A	A	A	A								
	GNR 985: 17																
HABITAT DESTRUCTION																	
The transformation of zoned land	GNR 985: 15							A		Site specific report	C	I	P	P	I	I	I
Physical alteration of virgin soil	GNR 984: 13							A									
Clearance of vegetation	GNR 985: 12	A								Site specific report	C	C	C	C	I	C	I
	GNR 983: 27							A									
	GNR 984: 15																
DEVELOPMENT OF PREVIOUSLY DISTURBED LAND																	
Residential, mixed, retail, commercial, industrial or institutional developments, where land was previously used for agriculture/afforestation, mining or heavy industrial purposes	GNR 983: 28									Site specific report	E (See A-10)	I	I	P	I	I	I
	GNR 983: 26					A	A	A	A								
	GNR 983: 35																

EMF Theme	Applicable activities	Impacts							Site Specific Environmental constraints/opportunities	Zones (Colours as on 'Management Zones' map)							
		Air pollution issues	Nuisance issues (odours)	Noise related issues	Visual issues	Traffic impact issues	Geotechnical issues	Heritage (archaeological & palaeontological) impacts		Socio-economic impacts	Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone
MINING & PETROLEUM DEVELOPMENT ACTIVITIES																	
Mining activities	GNR 983: 20									Site specific report	I	I	P	P	I	I	I
	GNR 983: 21	A		A	A	A	A	A	A	Site specific report	I	I	P	P	I	I	I
	GNR 984: 17									Site specific report	I	I	P	P	I	I	I
	GNR 984: 19									Site specific report	I	I	P	P	I	I	I
Mineral processing	GNR 984: 21	A	A	A				A	A	Site specific report	I	I	P	P	I	I	I
	GNR 983: 33									Site specific report	I	I	P	P	I	I	I
	GNR 983: 58									Site specific report	I	I	P	P	I	I	I
Petroleum winning activities	GNR 984: 18	A	A	A	A	A	A	A	A	Site specific report	I	I	P	P	I	I	I
	GNR 984: 20									Site specific report	I	I	P	P	I	I	I
Petroleum processing	GNR 984: 22	A	A	A	A		A	A	A	Site specific report	C	I	P	P	I	I	I
Decommissioning & mine closure	GNR 983: 22	A	A	A	A		A	A	A	Site specific report	P	P	P	P	P	P	I
ACTIVITIES WITH VISUAL INTRUSION																	
Activities with visual intrusion	GNR 985: 1				A					Site specific report	E (See A-11)	I	P	P	P	I	I
	GNR 985: 3									Site specific report	I	P	P	P	I	I	I

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EMF Theme	Applicable activities	Environmental Impact Categories						Site Specific Environmental constraints/opportunities	Zones (Colours as on 'Management Zones' map)								
		Air pollution issues	Nuisance issues (odours)	Noise related issues	Visual issues	Traffic impact issues	Geotechnical issues		Heritage (archaeological & palaeontological) impacts	Socio-economic impacts	Zone A: Urban Development Zone	Zone B: Linear Development Zone	Zone C: Renewable Energy Development Zone	Zone D: General Development Zone	Zone E: Heritage Zone	Zone F: Agriculture Zone	Zone G: Biodiversity Zone
WASTE MANAGEMENT ACTIVITIES																	
Storage of general waste in lagoons	GNR 921: A1		A				A	A	Site specific report	N	N	N	N	N	N	N	
Storage of hazardous waste	GNR 921: B1		A				A	A	Site specific report	P	I	P	P	I	I	I	
Recycling or recovery of small volumes of general and hazardous wastes	GNR 921: A2								Site specific report	C	I	P	P	I	I	I	
	GNR 921: A3		A				A										
	GNR 921: A4																
	GNR 921: A5																
Re-use, recycling or recovery of large volumes of general and hazardous wastes	GNR 921: B2	A	A				A		Site specific report	C	I	P	P	I	I	I	
	GNR 921: B3																
Treatment of small volumes of general and hazardous wastes	GNR 921: A6	A	A						Site specific report	C	I	P	C	I	I	I	
	GNR 921: A7																
The remediation of contaminated land	GNR 921: A8						A		Site specific report	N	N	N	N	N	N	N	
Treatment of large volumes of general and hazardous wastes	GNR 921: B4								Site specific report	C	I	P	P	I	I	I	
	GNR 921: B5	A	A		A	A											
	GNR 921: B6																
Disposal of small volumes of inert, general and domestic waste	GNR 921: A9								Site specific report	C	I	P	P	I	P	I	
	GNR 921: A10		A				A	A									
	GNR 921: A11																
Disposal of hazardous waste and large volumes of inert and general	GNR 921: B7								Site specific report	P	I	P	P	I	I	I	
	GNR 921: B8	A	A		A	A	A										
	GNR 921: B9																
Construction of facilities for Category A waste management activities, as well as expansion or decommissioning of all waste management facilities	GNR 921: A12	A		A		A	A	A	Site specific report	C	I	P	P	I	I	I	
	GNR 921: A13																
	GNR 921: A14																
Construction of facilities for Category B waste management activities	GNR 921: B10	A		A		A	A	A	Site specific report	C	I	P	P	I	I	I	

Addendum 15: General environmental management guidelines for the various management zones, as well as specific environmental management guidelines for specified activities within these zones.

Zone A: Urban Development Zone)	
General environmental management guidelines	
<p>The following general management guidelines are applicable to Zone A:</p> <ul style="list-style-type: none"> • <i>Development should be confined to urban areas (areas situated within the urban edge, or where no urban edge has been defined or adopted, areas situated within the edge of built-up areas) to minimise the effects of urban sprawl in the area.</i> • <i>Green open spaces should be established and protected.</i> • <i>The following should be encouraged in this zone:</i> <ul style="list-style-type: none"> ○ <i>Urban infill development;</i> ○ <i>Appropriate land uses as reflected in the SDF;</i> ○ <i>Upgrading of service infrastructure;</i> ○ <i>Urban greening;</i> ○ <i>Industrial development.</i> 	

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
A - 1	GNR 985: 2 GNR 985: 16	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A 1.1 – The development footprint will not exceed the boundaries of Zone A. • A 1.2 – The development footprint does not intersect one of the following areas identified in Listing Notice 3 of the Environmental Impact Assessment Regulations 2014: <ul style="list-style-type: none"> ○ A 1.2.1 – An area zoned for use as public open space; or ○ A 1.2.2 – An area designated for conservation use in the Taung Local Municipality Spatial Development Framework (SDF)
A - 2	GNR 985: 10 GNR 985: 22	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A 2.1 – The development footprint will not exceed the boundaries of Zone A.
	GNR 983: 14	May not be excluded from the requirement to obtain an environmental authorisation, but COMPATIBLE in Zone A
	GNR 983: 51	May not be excluded from the requirement to obtain an environmental

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
		authorisation, but COMPATIBLE in Zone A
	GNR 984: 4	May not be excluded from the requirement to obtain an environmental authorisation, but COMPATIBLE in Zone A
A - 3	GNR 983: 11 GNR 983: 47	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A 3.1 – The development footprint will not exceed the boundaries of Zone A. • A 3.2 – Upon consideration of the ‘site specific report’ generated by the EMF decision support tool, the competent authority will decide whether specific specialist studies must be conducted to inform the site lay-out (development footprint) or the environmental management programme. <p>In addition, the following management requirements must be implemented by the developer and accepted in writing and verified by the applicable competent authority(ies):</p> <ul style="list-style-type: none"> • A 3.3 – A detailed site development plan (layout and footprint of the development) will be submitted to the competent authority for approval. • A 3.4 – An environmental management programme will be submitted to the competent authority for approval and implemented. • A 3.4 – Any sensitive features identified on the site will be reported to the competent authority. • A 3.5 – Officials from the competent authority will be granted access to the site (on prior arrangement with the developer) during and after the development phase of the project. • A 3.6 – Any other requirements identified by the relevant competent authority(ies) will be adhered to.
	GNR 984: 9	Not applicable to this zone
A - 4	GNR 983: 9 GNR 983: 45	<p>The activity may be excluded from the requirement to obtain an environmental authorisation (basic assessment) within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A 4.1 – The development footprint will not exceed the boundaries of Zone A.
A - 5	GNR 983: 10 GNR 983: 46	<p>The activity may be excluded from the requirement to obtain an environmental authorisation (basic assessment) within Zone A, provided that the following development conditions are met:</p>

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
		<ul style="list-style-type: none"> • A 5.1 – The development footprint will not exceed the boundaries of Zone A.
A - 6	GNR 983: 24 GNR 983: 56	<p>The activity may be excluded from the requirement to obtain an environmental authorisation (basic assessment) within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A(a) 6.1 – The development footprint will not exceed the boundaries of Zone A.
	GNR 985: 4 GNR 985: 18	<p>The activity may be excluded from the requirement to obtain an environmental authorisation (basic assessment) within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A(b) 6.1 – The development footprint will not exceed the boundaries of Zone A. • A(b) 6.2 – The development footprint does not intersect one of the following areas identified in Listing Notice 3 of the Environmental Impact Assessment Regulations 2014: <ul style="list-style-type: none"> ○ A(b) 6.2.1 – An area zoned for use as public open space; or ○ A(b) 6.2.2 – An area designated for conservation use in the Taung Local Municipality Spatial Development Framework (SDF) ○ A(b) 6.2.3 – An area zoned as a natural heritage site
	GNR 984: 27	May not be excluded from the requirement to obtain an environmental authorisation, but COMPATIBLE in Zone A
A - 7	GNR 985: 11 GNR 985: 21	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A 7.1 – The development footprint will not exceed the boundaries of Zone A. • A 7.2 – The development footprint does not intersect one of the following areas as defined in Listing Notice 3 of the Environmental Impact Assessment Regulations 2014: <ul style="list-style-type: none"> ○ A 7.2.1 – An area zoned for use as public open space; or ○ A 7.2.2 – An area designated for conservation use in the Taung Local Municipality Spatial Development Framework (SDF) ○ A 7.2.3 – An area zoned as a natural heritage site

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
A - 8	GNR 985: 8 GNR 985: 20 GNR 985: 9 GNR 985: 25	<p>The activity may be excluded from the requirement to obtain an environmental authorisation (basic assessment) within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A 8.1 – The development footprint will not exceed the boundaries of Zone A. • A 8.2 – The development footprint does not intersect one of the following areas identified in Listing Notice 3 of the Environmental Impact Assessment Regulations 2014: <ul style="list-style-type: none"> ○ A 8.2.1 – An area zoned for use as public open space; or ○ A 8.2.2 – An area designated for conservation use in the Taung Local Municipality Spatial Development Framework (SDF) ○ A 8.2.3 – An area zoned as a natural heritage site ○ A 8.2.4 – Critical biodiversity areas (Type 1 or 2) as identified in the North West Province Critical Biodiversity Assessment. • A 8.3 - Where the development footprint is within 10km of the Taung Skull World Heritage Site, the competent authority will decide on a possible exclusion and other requirements, such as specialist studies and environmental management programmes .
A - 9	GNR 985: 5 GNR 985: 6 GNR 985: 17	<p>The activity may be excluded from the requirement to obtain an environmental authorisation (basic assessment) within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A 9.1 – The development footprint will not exceed the boundaries of Zone A. • A 9.2 – The development footprint does not intersect one of the following areas identified in Listing Notice 3 of the Environmental Impact Assessment Regulations 2014: <ul style="list-style-type: none"> ○ A 9.2.1 – An area zoned for use as public open space; or ○ A 9.2.2 – An area designated for conservation use in the Taung Local Municipality Spatial Development Framework (SDF)
A-10	GNR 983: 28	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A 10.1 – The development footprint will not exceed the boundaries of Zone A. • A 10.2 – The development footprint will not exceed 7 hectares. • A 10.3 – Upon consideration of the 'site specific report' generated by the EMF decision support tool, the competent authority will decide whether specific specialist studies must be

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
		<p>conducted to inform the site lay-out (development footprint) or the environmental management programme.</p> <p>In addition, the following management requirements must be implemented by the developer and accepted in writing and verified by the applicable competent authority(ies):</p> <ul style="list-style-type: none"> • A 10.3 – A detailed site development plan (layout and footprint of the development) will be submitted to the competent authority for approval. • A 10.4 – An environmental management programme will be submitted to the competent authority for approval and implemented. • A 10.6 – Any sensitive features identified on the site must be reported to the competent authority. • A 10.7 – Officials from the competent authority should be granted access to the site (on prior arrangement with the developer) during and after the development phase of the project. • A 10.8 – Any other requirements identified by the relevant competent authority(ies) should be adhered to.
	GNR 983: 26	May not be excluded from the requirement to obtain an environmental authorisation, but COMPATIBLE in Zone A
	GNR 983: 35	May not be excluded from the requirement to obtain an environmental authorisation, but COMPATIBLE in Zone A
A - 11	GNR 985: 1	<p>The activity may be excluded from the requirement to obtain an environmental authorisation (basic assessment) within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A(a) 11.1 – The development footprint will not exceed the boundaries of Zone A.
	GNR 985: 3	<p>The activity may be excluded from the requirement to obtain an environmental authorisation (basic assessment) within Zone A, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • A(b) 11.1 – The development footprint will not exceed the boundaries of Zone A. • A(b) 11.2 – The development footprint does not intersect one of the following areas identified in Listing Notice 3 of the Environmental Impact Assessment Regulations 2014: <ul style="list-style-type: none"> ○ A(b) 11.2.1 – An area zoned for use as public open space; or ○ A(b) 11.2.2 – An area designated for conservation use in the Taung Local Municipality Spatial Development Framework

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
		(SDF)

Zone B: Linear Development Zone
General environmental management guidelines
<p>The following general management guidelines are applicable to Zone B:</p> <ul style="list-style-type: none"> • <i>The upgrading of linear infrastructure within these already transformed zones should be encouraged and prioritised.</i> • <i>The formalisation of gravel roads should be encouraged in this zone.</i> • <i>New linear developments should as far as possible be aligned with this zone and where possible confined to the boundaries of this zone.</i>

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
B – 1	GNR 983: 11 GNR 983: 47	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone B, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • B 1.1 – The development footprint will not exceed the boundaries of Zone B. • B 1.2 – The capacity will not exceed 275 kilovolts • B 1.3 – Upon consideration of the 'site specific report' generated by the EMF decision support tool, the competent authority will decide whether specific specialist studies must be conducted to inform the development footprint or the environmental management programme. <p>In addition, the following management requirements must be implemented by the developer and accepted in writing and verified by the applicable competent authority(ies):</p> <ul style="list-style-type: none"> • B 1.4 – A detailed site development plan (layout and footprint of the development) will be submitted to the competent authority for approval. • B 1.5 – An environmental management programme will be submitted to the competent authority for approval and implemented. • B 1.6 – Any sensitive features identified on the site will be reported to the competent authority. • B 1.7 – Officials from the competent authority will be granted

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
		<p>access to the site (on prior arrangement with the developer) during and after the development phase of the project.</p> <ul style="list-style-type: none"> • B 1.8 – Any other requirements identified by the relevant competent authority(ies) will be adhered to.
	GNR 984: 9	May not be excluded from the requirement to obtain an environmental authorisation, but COMPATIBLE in Zone B
B - 2	GNR 983: 9 GNR 983: 45	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone B, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • B 2.1 – The development footprint will not exceed the boundaries of Zone B
B - 3	GNR 983: 10 GNR 983: 46	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone B, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • B 3.1 – The development footprint will not exceed the boundaries of Zone B
B - 4	GNR 983: 24 GNR 983: 56	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone B, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • B(a) 4.1 – The development footprint will not exceed the boundaries of Zone B. • B(a) 4.2 – Upon consideration of the 'site specific report' generated by the EMF decision support tool, the competent authority will decide whether specific specialist studies must be conducted to inform the development footprint or the environmental management programme. <p>In addition, the following management requirements must be implemented by the developer and accepted in writing and verified by the applicable competent authority(ies):</p> <ul style="list-style-type: none"> • B(a) 4.3 – A detailed site development plan (layout and footprint of the development) will be submitted to the competent authority for approval. • B(a) 4.4 – An environmental management programme will be submitted to the competent authority for approval and implemented. • B(a) 4.5 – Any sensitive features identified on the site will be reported to the competent authority. • B(a) 4.6 – Officials from the competent authority will be granted access to the site (on prior arrangement with the developer)

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
		<p>during and after the development phase of the project.</p> <ul style="list-style-type: none"> • B(a) 4.7 – Any other requirements identified by the relevant competent authority(ies) will be adhered to.
	GNR 985: 4 GNR 985: 18	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone B, provided that the following development conditions and environmental management requirements are met:</p> <ul style="list-style-type: none"> • B(b) 4.1 – The development footprint will not exceed the boundaries of Zone B. • B(b) 4.2 – The development footprint does not intersect one of the following areas identified in Listing Notice 3 of the Environmental Impact Assessment Regulations 2014: <ul style="list-style-type: none"> ○ B(b) 4.2.1 – A National Protected Area Expansion Strategy Focus Area; ○ B(b) 4.2.2 – Sites or areas identified in terms of an international convention; ○ B(b) 4.2.3 – Critical biodiversity areas (Type 1 or 2) as identified in the North West Province Critical Biodiversity Assessment. • B(b) 4.3 – Where the development footprint is within 10km of the Taung Skull World Heritage Site, the competent authority will decide on a possible exclusion and other requirements, such as specialist studies and environmental management programmes. • B(b) 4.4 – Any other requirements identified by the relevant competent authority(ies) will be adhered to.
	GNR 984: 27	May not be excluded from the requirement to obtain an environmental authorisation, but COMPATIBLE in Zone B

Zone C: Renewable Energy Development Zone

General environmental management guidelines

The following general management guidelines are applicable to Zone C:

- *Solar energy is a natural resource in the GTLM and the harnessing of its potential should be encouraged.*
- *Solar farms using photovoltaic technology should be encouraged.*
- *Solar farms should be developed in such a way that the natural systems on which it impacts can still function to an acceptable degree.*
- *Areas in close proximity to existing Eskom infrastructure should be prioritised for solar energy farms.*

Zone C: Renewable Energy Development Zone

- *Clustering of solar energy farms should be encouraged.*

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone

Code	Applicable activity	Specific environmental management guideline
C – 1	GNR 983: 1 GNR 983: 36	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone C, provided that the following development conditions are met:</p> <ul style="list-style-type: none"> • C 1.1 – The development footprint will not exceed the boundaries of Zone C. • C 1.2 – The output of the facility will not exceed 20 megawatts. • C 1.3 – The development footprint will not exceed 2 hectares. • C 1.4 – Upon consideration of the 'site specific report' generated by the EMF decision support tool, the competent authority will decide whether specific specialist studies must be conducted to inform the development footprint or the environmental management plan. <p>In addition, the following management requirements must be implemented by the developer and accepted in writing and verified by the applicable competent authority(ies):</p> <ul style="list-style-type: none"> • C 1.5 – A detailed site development plan (layout and footprint of the development) will be submitted to the competent authority for approval. • C 1.6 – An environmental management programme will be submitted to the competent authority for approval and implemented. • C 1.7 – Any sensitive features identified on the site will be reported to the competent authority. • C 1.8 – Officials from the competent authority will be granted access to the site (on prior arrangement with the developer) during and after the development phase of the project. • C 1.9 – Any other requirements identified by the relevant competent authority(ies) will be adhered to.
	GNR 984: 1	May not be excluded from the requirement to obtain an environmental authorisation, but COMPATIBLE in Zone C

Zone D: General Development Zone

General environmental management guidelines

The following general management guidelines are applicable to Zone D:

- *Sensitive features that are identified should be protected.*
- *Activities with a high probability of air pollution and noise pollution that might negatively affect people might be more suited to this zone.*

Zone E: Heritage Zone

General environmental management guidelines

The following general management guidelines are applicable to Zone E:

- *Activities in this area should be limited to those that will complement the heritage features.*
- *Extreme care should be taken to protect sensitive heritage resources.*
- *Tourism related activities should be encouraged – providing that they will not negatively affect the heritage features.*

Zone F: Agriculture Zone

General environmental management guidelines

The following general management guidelines are applicable to Zone F:

- *High potential agricultural land may under no circumstances be used for other types of development.*
- *Crop farming should be encouraged.*
- *Irrigation potential should be optimised.*
- *Intensive agriculture should be encouraged and developed.*

Possible listed activities that may be excluded from the requirement to obtain an environmental authorisation in this zone		
Code	Applicable activity	Specific environmental management guideline
F - 1	GNR 983: 8 GNR 983: 43	<p>The activity may be excluded from the requirement to obtain an environmental authorisation within Zone F, provided that the development conditions are met:</p> <ul style="list-style-type: none"> • F 1.1 – The development footprint will not exceed the boundaries of Zone F. • F 1.2 – The development footprint will not exceed 3000 square metres. • F 1.3 – Upon consideration of the 'site specific report' generated by the EMF decision support tool, the competent authority should decide whether specific specialist studies must be conducted to inform the development footprint or the environmental management plan. <p>In addition, the following management requirements must be implemented by the developer and accepted and verified in writing by the applicable competent authority(ies):</p> <ul style="list-style-type: none"> • F 1.4 – A detailed site development plan (layout and footprint of the development) will be submitted to the competent authority for approval. • F 1.5 – An environmental management programme will be submitted to the competent authority for approval and implemented. • F 1.6 – Any sensitive features identified on the site will be reported to the competent authority. • F 1.7 – Officials from the competent authority will be granted access to the site (on prior arrangement with the developer) during and after the development phase of the project. • F 1.8 – Any other requirements identified by the relevant competent authority(ies) will be adhered to.

Zone G: Biodiversity Zone

General environmental management guidelines

The following general management guidelines are applicable to Zone G:

- *Biodiversity should be protected within these areas at all costs.*
- *Before any non-conservation related activity is to be considered a detailed specialist study has to be conducted by an accredited scientist to determine the impacts of the envisaged activity not only on the site but also on the larger area (strategic context).*
- *Activities should be limited to conservation related and low-impact tourism related activities.*