
DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM

Development of a Core Set of Environmental Performance Indicators

Final Report and Set of Indicators

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PALMER DEVELOPMENT GROUP

Preface

This report provides a framework for the selection of a set of Environmental Performance Indicators for local level reporting in South Africa – and proposes an initial set of environmental performance indicators for local level reporting. This is by no means a definitive final set of indicators, but rather a first step towards recognition and agreement of a core set of such indicators which can be adopted and used as a tool by local government. The framework and indicators provided are based on an analysis of current local government ‘responsibilities’ for the environment and of environmental indicators currently being used throughout the country at national, provincial and local government level.

This report was produced by Palmer Development group (Julie Middleton, Leonard Futwa, Nishendra Moodley, Mike Goldblatt and Mthobeli Kolisa). PDG was guided through this project by a Steering Committee comprising: Liza Grobler (DEAT), Ester Koch (DEAT), Bryan McCourt (DACE, Gauteng Province), Garth Batchelor (DACE, Mpumalanga Province), Anna Mampye (DACE, North West Province), Joseph Leshabane (SALGA), Vincent Rabothata (DPLG).

The project was managed for DEAT by the following project management committee: Dr Rudi Pretorius and Liza Grobler.

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List of Acronyms

DEAT	Department of Environmental Affairs and Tourism
DPLG	Department of Provincial and Local Government
DWAF	Department of Water Affairs and Forestry
DPSIR	Driver, Pressures, State, Impacts, Response
ECA	Environmental Conservation Act
EIP/EMP	Environmental Implementation Plan/ Environmental Management Plan
EPI	Environmental Performance Indicator
IDP	Integrated Development Plan
NEMA	National Environmental Management Act
PSR	Pressures, State, Response
SALGA	South African Local Government Association
SoE	State of Environment

1. Introduction

The document is presented in six main sections. This, the first section, provides a brief introduction to the aims of the project and defines some key terms. The second deals more specifically with indicators and provides an introduction to the various definitions, frameworks and types of environmental indicators, and specifically 'environmental performance indicators'. The third provides a brief overview of the methodology used in this project for the identification of a core set of indicators for local level reporting. The fourth describes the framework that was developed for the selection of the indicators. The fifth presents the draft list of indicators and the sixth section outlines the recommendations arising from the consultation process.

1.1 Aim of the Project

The aim of this project is to identify a core set of environmental performance indicators for local level reporting – and specifically for integration into Integrated Development Planning, Environmental Implementation/Environmental Management Planning and State of Environment Planning processes carried out by local and provincial governments.

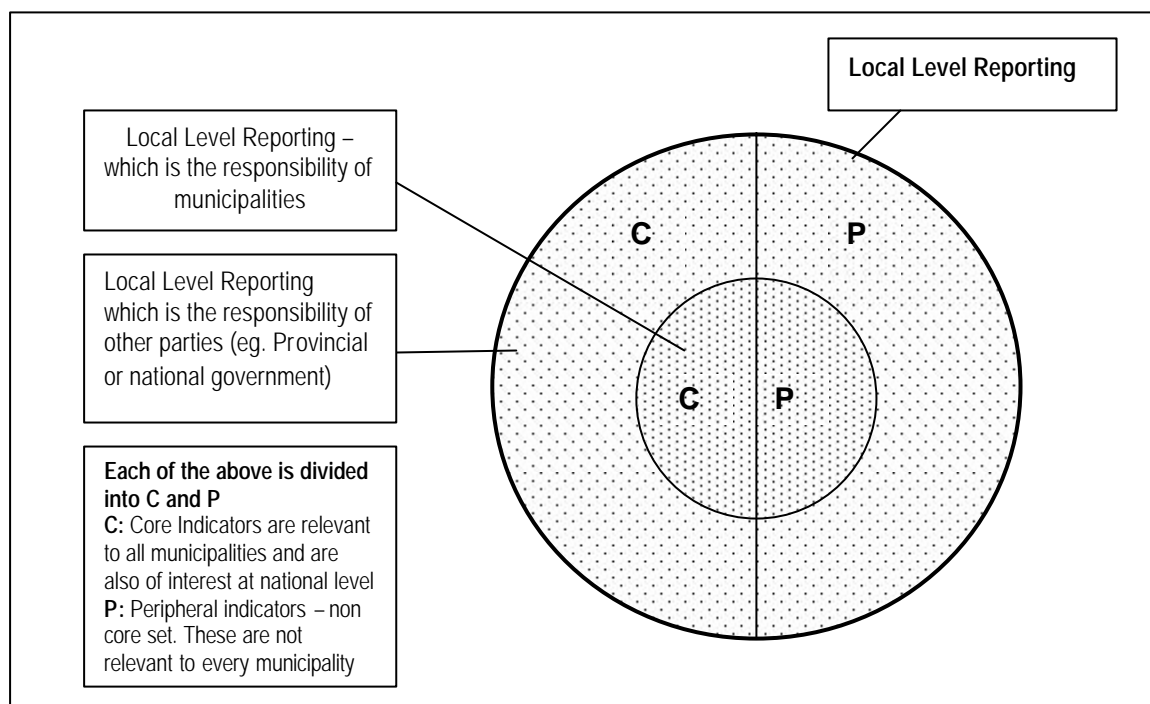
1.2 Key Terms

'Local Level Reporting'. This refers to the reporting of activity which is taking place within a municipal area (metropolitan, district or local). However, even though the activity is taking place within a municipality, responsibility for the activity or its monitoring and reporting, may not necessarily lie with the municipality – but may reside with the provincial or national government. There may even be a difference in this responsibility between the different tiers of local government. Thus local level reporting is not just reporting by local government – but could include reporting by provincial departments or in some cases by national departments, depending on who has the assigned responsibility for reporting on the specific activity.

'Core Indicators': these are indicators which are relevant to all municipalities or provinces (depending on which sphere of government the indicator applies to) and is also of national interest (in other words, they can be aggregated up to a national level and can then help DEAT to achieve a county-wide picture of performance).

'Peripheral Indicators': these are indicators which are not relevant to every province or municipality but may be more suitable for use by those with particular characteristics (e.g. Coastal). This group of indicators also contains those which are not felt to be of relevance at the national level.

The diagram below should help to illustrate the relationship between the above terms.

Figure 1: Local Level Reporting - schematic diagram

‘Environment’: For the purposes of this analysis, the term ‘environment’ refers to the **biophysical** element of the natural environment only. However, DEAT is also interested in issues where there is an overlap between the biophysical and social/economic elements of the environment. These are often the so-called ‘brown’ environmental issues such as waste management, water services, environmental health and so on. This study therefore expands the meaning of the term environment somewhat to cover these areas of overlap, but the focus remains mostly on the biophysical.

2. EPIs: Definitions, Frameworks and Types

2.1 Definitions

2.1.1 Performance Indicators

Performance Indicators are defined in a range of different ways by different practitioners and authors. The following quotation provides a useful definition for the purposes of this study:

“Indicators are essentially pieces of information that reveal conditions, and over time, trends. Indicators can be used to make policy and planning decisions, to identify whether policy goals and targets are being met, and sometimes to predict change. Indicators can also be used to compare conditions of different locales or progress towards policy targets”(IDRC 1998).

2.1.2 Environmental Performance Indicators

EPIs are increasingly being used by donor agencies (such as the World Bank) to identify what effect their projects are having on the environment. The World Bank has developed a set of EPIs and define an EPI as follows:

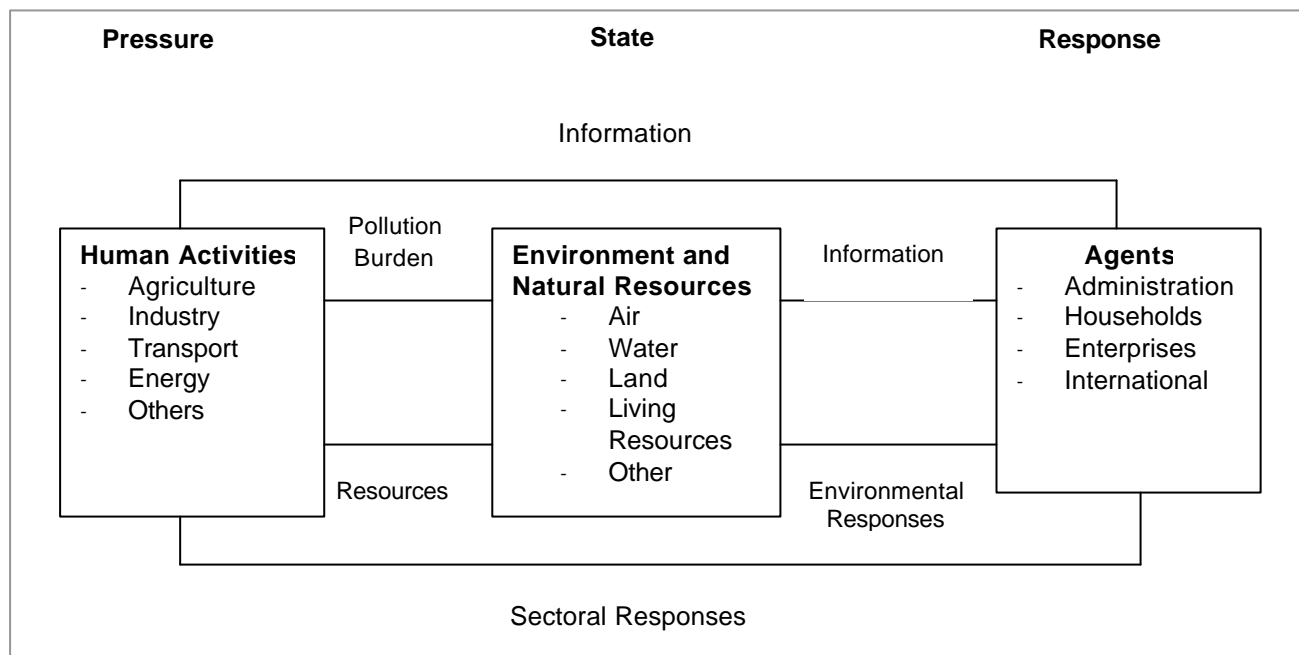
“An indicator’s defining characteristics is that it quantifies and simplifies information in a manner that facilitates understanding of environmental problems by both decision-makers and the public. The goal is to assess how project activities affect the direction of change in environmental performance, and to measure the magnitude of that change” (Segnestam 1999).

There may be some overlap with general environmental indicators, such as those used within State of Environment reports. These are designed to describe the general state or condition of an environment and the factors influencing it (more on this below). To measure environmental performance of, for example a municipality or one of its policies or activities, it may be necessary to identify the condition of the environment and to track how it changes through time - hence the overlap and potential confusion with SOE indicators. There will also be overlap with indicators being used by local government within IDPs, where the environment or one of its elements has been raised an issue to be tackled by the municipality.

2.2 Environmental Indicator Frameworks

Indicator frameworks provide the means to structure sets of indicators in a manner that facilitates their interpretation. Frameworks can also aid the understanding of how different issues are interrelated (Segnestam 1999). For national-level environmental indicator sets, the OECD Pressure-State- Response framework is widely used (see Figure 2 below). This has been adapted for use in State of the Environment Reports to the DPSIR framework (Drivers, Pressures, State, Impacts, Response). Both the PSR and DPSIR frameworks have been implemented in South Africa within State of Environment Reports. However these frameworks can also be used in other contexts, such as evaluation of projects or policies which may either directly or indirectly affect the environment.

A short explanation of these frameworks has been included here as any environmental performance indicators chosen within this project will have to be integrated into the State of Environment frameworks being used in the country.

Figure 2: PSR Framework (from Segnestam 1999)

In this framework, three different aspects of environmental problems are distinguished:

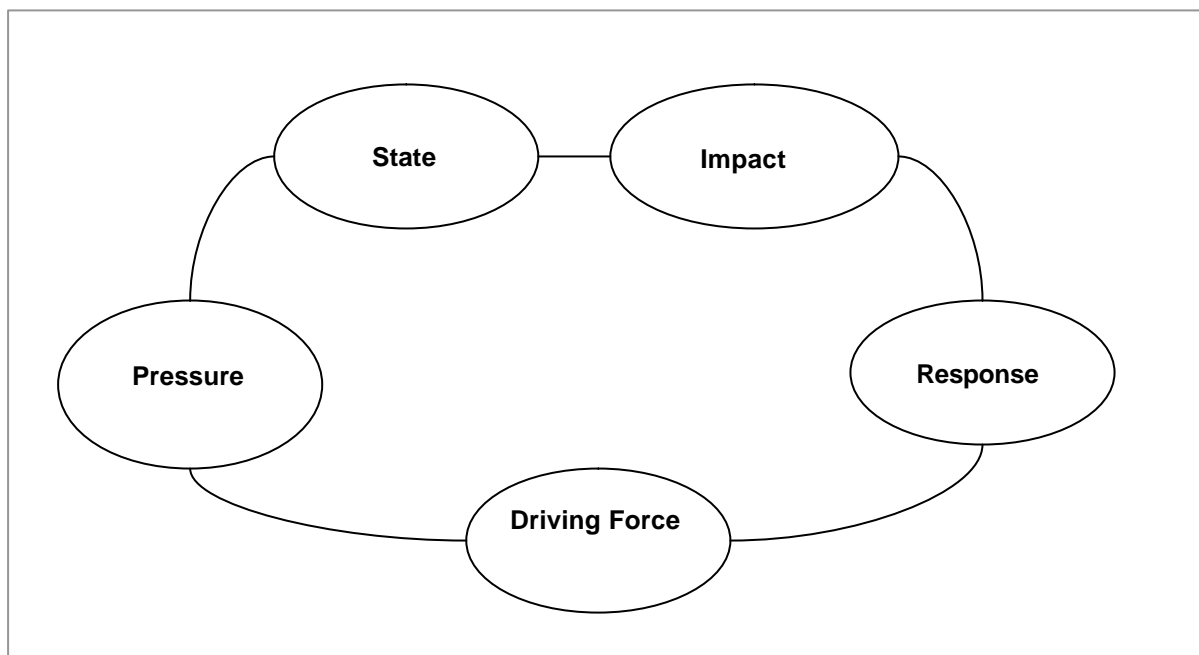
The *Pressure* variable – describes the underlying cause of the problem. The *Pressure* may be an existing problem (for example, air pollution from buses) or it may be the result of a new project or activity, such as air pollution from a new power plant.

The *State* variable usually describes some physical, measurable characteristic of the environment that results from the pressure. Ambient pollution levels of air or water are common *state* variables used in analysing pollution.

The *Response* variables are those policies or investments that are introduced to solve the problem. As such they can affect the state either directly (for example, by installing pollution control equipment) or indirectly, by acting on the pressures at work (for example, by providing incentives for bus companies to develop low-emission technology)

In the DPSIR framework – variables for drivers and impacts have been added in the sequence shown in Figure 3. Drivers are the human influences and activities that, when combined with environmental conditions, underpin environmental change. Indicators for driving forces described the social, demographic and economic developments in societies and the corresponding changes in lifestyles, overall levels of consumption and production patterns (DEAT 2002).

Impacts are the results of pressures on the current state of the environment, which occur in a certain sequence.

Figure 3: DPSIR Framework

2.3 Types of EPIs

The frameworks above break an environmental problem or situation into various elements (drivers, state, impact etc), in an attempt to fully describe and understand it. Within the State of Environment approach, indicators are then developed for each of these elements as a way of describing the status of the element. For example, ambient air quality is measured to identify the 'state' of air in an area, whereas emissions of particular substances might be measured to provide an indication of pressures. Number of licensed emitters in an area may be measured to identify the size of this particular driving force – and so on.

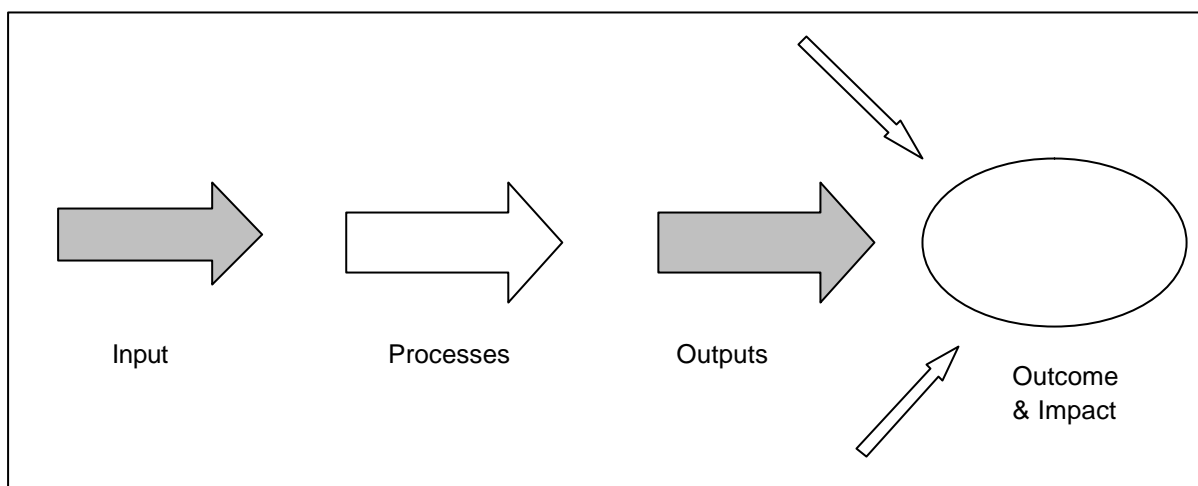
This project is concerned with the development of indicators not only for local level SOE reporting, but also for the measurement of **performance** of different spheres of government in delivering their responsibilities for the environment. In this case, the focus shifts towards indicators which specifically relate to the measurement of '**response**' by government. Continuing the air quality example, this might include indicators to identify whether monitoring of air pollutants is being carried out; whether there are plans and policies being implemented to address the problem and so on.

The purpose of this section is to introduce and describe the different 'types' of indicators that can be used for measurement of any of the elements above – and to identify those which are particularly useful in the measurement of 'response' by government and its performance in this regard.

What is being measured.

Generally speaking, there are four types of indicators; Input, process, output and outcome/impact indicators. Each of these measures a different aspect of performance, as illustrated in the diagram below:

Figure 4: Types of Indicators



In the case of a government entity, such as a municipality:

Input Indicators are typically cost related and are most relevant to the day-to-day operations of a municipality. In general terms these are therefore of limited use to a national set of performance indicators unless comparisons in developing benchmarks are required. The World Bank agrees with this approach and leaves the analysis of inputs to project management processes. However, in relation to the environment and the role of local government in this, input indicators may be useful to identify the level of commitment of a municipality to their environmental responsibilities (in terms of % of budget committed; number of staff involved and so on!).

Process indicators describe how well a municipality uses its resources to produce services. These cover the activities and operations that convert inputs into outputs. It is essentially an internal type of indicator that is most relevant to the municipality concerned and is therefore of limited relevance to a national set of performance indicators, unless there is a particular reason for their measurement. A sub-group of process indicators are indicators that measure **compliance** with regard to existing standards and requirements. These standards and requirements may be local (within by-laws for example) or may be set by national or provincial departments or may be contained legislation/regulations.

Output indicators refer to the 'products' produced by processing inputs – i.e. the immediate or short-term results. For example, the number of protected areas established; the number of pollution licences granted and so on. In general output indicators should only be used for those functions for which local government is directly responsible. Where responsibility for provision is clear, output indicators

can be used to hold the municipality accountable for provision – they measure how well municipalities are performing in terms of their service delivery mandate.

Outcome indicators measure the extent to which goals and objectives are being met. For example, number of endemic species found in a local area. They are usually based on the results of different variables acting together (for example, not just on the number of protected areas created, but also climatic changes, agricultural practices and so on) and they tend to lag behind output indicators because the outcomes of various outputs can only be measured after the outputs have been produced. They are also more difficult to measure and are usually influenced by factors external to the municipality's control, so it is difficult to hold a municipality solely responsible for performance in this regard. Many 'State of Environment' indicators are of this type.

Impact indicators – monitor the longer-term or more pervasive results of an activity, policy or project.

The World Bank (Segnestam 1999) concentrates its effort on measurement of outputs and impacts (although it combines outcomes and impacts into one category).

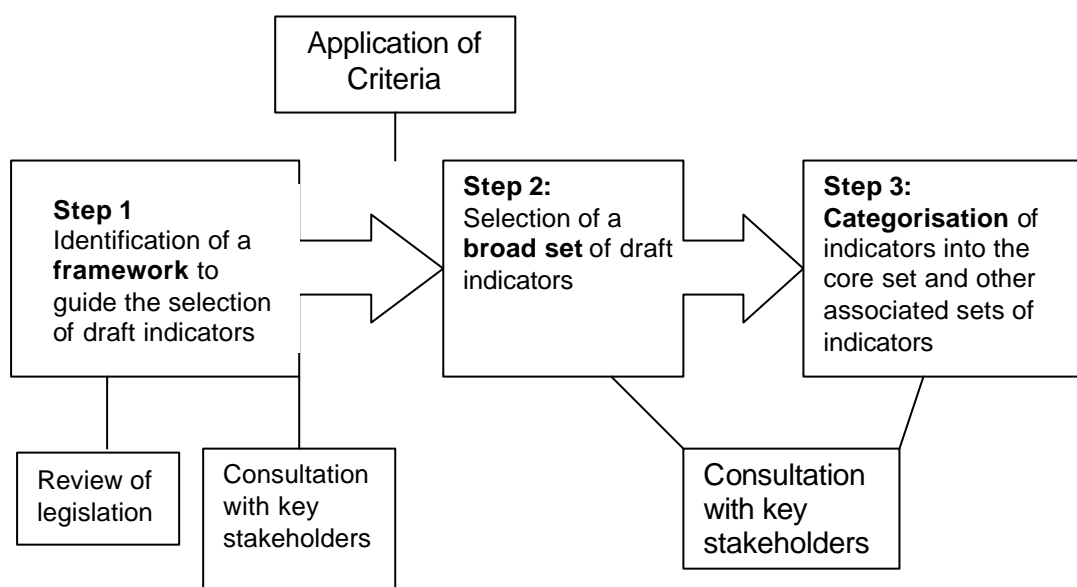
Within this project, the approach to the types of indicators chosen was influenced by the above. The focus was mostly on output and outcome indicators (especially output indicators for areas where there is clear responsibility). Process indicators were limited to the selection of indicators related to **compliance** with responsibilities assigned by national/provincial legislation or departmental requirements. Although input indicators are usually of limited interest at the national level, the consultation process demonstrated a need (and a demand for) input indicators for environmental issues at the local government level, in order to identify the level of commitment of a government entity to the environment (in terms of financial and human resources).

As noted at the start of this section, performance indicators mostly measure 'response' by government to an environmental driver, pressure, state or impact. Of the four types described above, input, compliance and output indicators are the most practical and meaningful types of indicators to use when measuring response and performance in delivering a response. Outcome and impact indicators are more problematic for monitoring this type of performance, for the reasons outlined above, and so less emphasis is placed on developing outcome indicators for this purpose in this project. However, some have been included where local level SoE indicators are required or where suitable and reliable outcome performance indicators can be identified.

3. Methodology

The methodology being used in this project is made up of three main phases, each with a series of steps – as shown in Figure 5 below:

Figure 5: Methodology



3.1 Step 1: Identification of a framework to guide selection of indicators.

This framework was developed following a review of environmental and local government legislation and a consultation with key stakeholders (see Appendix A for a more detailed discussion of the consultation process and stakeholders involved). The purpose was to identify the framework which would guide the selection of indicators – and the primary assumption was that this framework would be built around an understanding of the core mandates for the environment of local government, and where local government did not hold a mandate for a particular environmental issue, an understanding of the role of provincial and national government. A ‘situation analysis’ was prepared containing this information – and is attached at Appendix B for information.

3.2 Step 2: Selection of draft Indicators

This was carried out by systematically developing indicators for each of the core mandates identified in step1 above. A set of criteria (taken from general literature on environmental performance indicators) were applied in order to select appropriate, useful and meaningful indicators. These criteria are discussed in more detail in the following section. A review of indicators currently being used by

local, provincial and national government was also carried out and a composite list prepared. This list was used to identify already accepted wording for indicators to ensure that the core set eventually derived by this project, contained indicators of a format already in use across the country.

The initial selection was carried out by the PDG project team and this list was then circulated for comment to stakeholders and discussed with these stakeholders at a project workshop.

3.3 Step 3: Categorisation of Indicators

Given that municipalities and provinces across the country are not managing areas with the same characteristics, or indeed do not have similar levels of capacity, resources, knowledge, available data and so on at their disposal, it is prudent to divide the initial broad set of indicators into a series of sets which reflect these differences.

Appropriate categories were suggested by PDG and the categorisation of the indicators was carried out using a set of criteria at the project workshop. Details of the categories of indicators used are outlined in the 'framework' for the project in section 4 below.

3.4 Finalisation of final set via Consultation

As noted above, a project workshop was held towards the end of the project. This involved key stakeholders and had the following objectives:

- To finalise a broad draft set of indicators
- To categorise this set of indicators into the proposed sets
- To discuss important issues, concerns and ideas relating to the use of indicators by local government

All of these objectives were met by the workshop. A draft set of categorised indicators was produced although there were several areas for which suitable indicators could not be found and further work will be required by DEAT to identify these indicators. Various recommendations were provided by stakeholders for further consideration by DEAT.

The following section provides details on the outputs of the project. The indicators agreed and categorised at the workshop are contained in Appendix C and the final section of this report contains a discussion of recommendations to DEAT on how to take the process forward. Many of these came from discussions at the workshop.

4. Local EPI – framework

4.1 Introduction

The purpose of this section is to describe the framework that was developed in the initial stages of this project, to guide the selection of indicators. An outline of the framework is provided below – but more detailed information is provided in the ‘Situation Analysis’ which is attached at Appendix B.

4.2 Core Mandates & the Objects of Local Government

The first elements of the framework are the ‘core mandates’ of government for the local environment (remembering that local level reporting on the environment is related to ‘responsibility’ for it and this can lie with local, provincial or national government). These core mandates were identified through review of legislation and consultation with stakeholders (see Annex B).

It should be noted at this point that there is very little clarity within government (across all spheres and sectors) about where responsibility for the various components of the local environment lie. There is confusion within and between the different tiers of local government – and between the different spheres, as to who is responsible for doing what.

The decision reached within this project is as follows (but this may yet be corrected through consultation procedures as they continue):

- The ‘Core Mandates’ of local government are defined within the Constitution, Schedules 4b and 5b
- The Core Mandates of the other Spheres are defined within Schedules 4a and 5a
- Sectoral legislation may be available for each of these functions and if this is the case, it may provide guidance as to how these mandates should be carried out and what responsibilities should be.
- In legal terms, sectoral legislation can provide other mandates to local government where this is accompanied by an assignment or delegation. Where it is not accompanied by such an assignment or delegation, this creates an ‘unfunded mandate’ and strictly speaking municipalities are not ‘obliged’ to adopt this, however whether or not they still should is a debatable point.
- However, the ‘objects of local government’ within the Constitution (which must be adhered to by all municipalities) include the following requirements:
 - o to provide a ‘safe and healthy environment’.
 - o to ensure the provision of services to communities in a sustainable manner (the Municipal Systems Act expands this requirement to ‘environmentally sustainable’).

All municipalities must strive within their financial and administrative capacity to achieve these objects. It is assumed that in order to achieve these, a municipality will be obliged to implement any relevant national legislation that relates to a 'safe and healthy environment' or the delivery of 'environmentally sustainable' services.

All municipalities are also bound to respect, protect, promote and fulfil the environmental rights of an individual, as defined within the Bill of Rights:

- a) To have an environment that is not harmful to their health or well-being;
- b) To have an environment protected for the benefits of present and future generations through legislative and other measures that:
 - i. Prevents pollution and ecological degradation
 - ii. Promotes conservation
 - iii. Secures ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

Thus, for the purposes of this project, the Schedules 4 & 5 of the Constitution are the starting point for identification of mandates of spheres of government, with additional detail on what these mean, provided by sectoral legislation. Additional sectoral legislation is also used to identify areas for which local government 'should' be responsible in order to meet their 'objects' as defined in the Constitution. Provincial legislation and the role it may play in this, is not considered here as this project is concerned with the identification of set of core indicators for application across the country as a whole.

With the above in mind, the core mandates of local government for specific elements of 'the environment' were identified as follows¹:

Under Schedules 4b and 5b of the Constitution:

- Air Pollution
- Noise Pollution
- Refuse Removal, Refuse Dumps and Solid Waste Disposal
- Water and Sanitation Services
- Beaches
- Municipal Parks and Recreation
- Local Amenities (can be interpreted to include local protected areas)

¹ A background document (Situation Analysis) containing information on the core mandates of government for the environment and the legislative basis for these has been prepared and circulated already to the Steering Committee. Consultation on this Situation Analysis is also continuing and any changes may lead to changes in indicators developed.

- Storm water management in built up areas
- Municipal Planning
- (some elements of municipal health may be related to the environment – but this is a very broad and still undefined responsibility and has not been included here. It does overlap with many of the above and is therefore not seen as a major problem).

From other national Legislation:

- Biodiversity Act: states that all provincial EIPs /EMPs and municipal IDPS must be aligned to the national biodiversity framework (once produced) and any applicable bioregional plan. In terms of invasive species, all organs of state must produce an Invasive Species Monitoring, Control and Eradication plan for land under their control – and for provinces and local government, these must be integrated into the EIP/EMPs and IDPs respectively.
- NEMA: Chapter 1(2) of NEMA contains a set of environmental principles which are applicable to all organs of state. Local Government must incorporate these into all planning and policy making activities. It is up to provinces to see that this is done. Provinces must also incorporate these principles into their planning and policy making process – such as the EIP/EMP.
- Protected Areas Act: Under this Act, municipalities must prepare management plans for all 'local protected areas' as defined under the act. These must be submitted to the provincial MEC for environmental affairs for approval.

Provincial and national governments do have responsibility for some key environmental functions which are not held by local government. If information is to be gathered on these at the **local level**, it will thus have to be provided by provincial or national government. These functions include:

Province:

- Some elements of general waste management
- Hazardous waste
- Environmental Impact Assessment Authorisations
- Agriculture and soil conservation
- Estuaries and some coastal areas
- Water Resource Protection (wetlands)
- Areas of land within provincial parks

National:

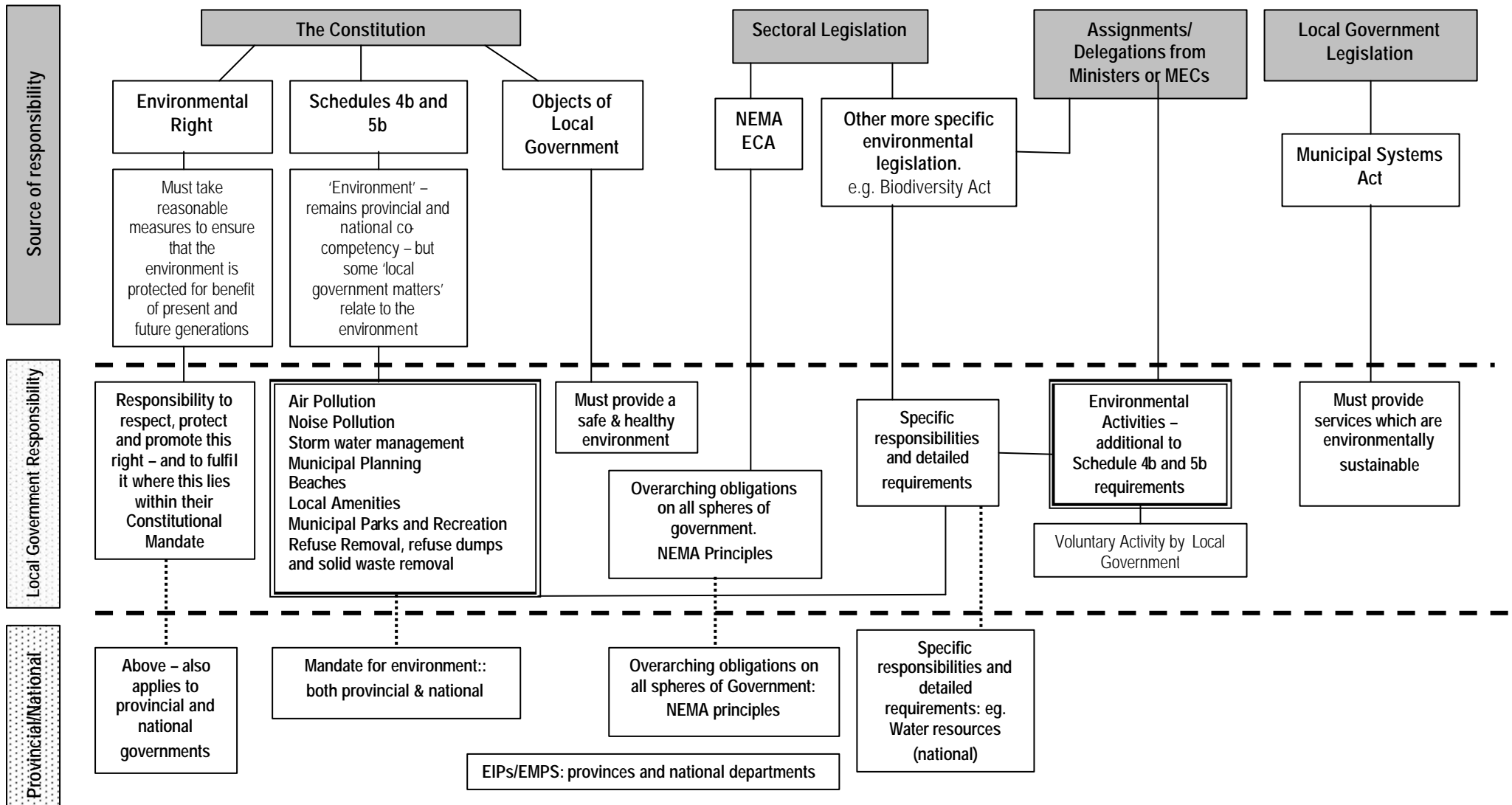
- Water Services and Water Resource Protection (Department of Water Affairs and Forestry²)
- Areas of land within National Parks (SAN Parks)

Indicators were identified for some of the above– but only for elements of these broad responsibilities for which there is no reporting being carried out by national government.

Figure 6 overleaf summarises the local level environmental responsibilities of local government – and of the other spheres of government – and includes the source of this responsibility where this is clear.

² Note: DWAF is responsible for the monitoring and reporting on all elements of water resource protection and so it was decided not to include indicators for this area within this project. These have already been developed by DWAF (as well as the systems required for collecting the information).

Figure 6: Source of local responsibility for the environment



4.3 Types of Indicators and criteria for selection

4.3.1 Types

Two broad types of indicators have been developed for each core mandate:

- input and/or process (compliance) - these will inform DEAT about the performance of government in its **regulatory** duties.
- Output/outcome/impact indicators - these will inform DEAT about the broader picture of environmental performance at the local level.

It was felt that the former are particularly important at the present time due to the fact that environmental legislation and the systems for its implementation are still developing within South Africa and as such measures of how spheres of government are performing in their regulatory function are important.

Some output/outcome/impact indicators should also be identified where appropriate. These will assist DEAT in assessing the general condition/state of the environment at the local level. Some of them will also act as benchmark indicators going forward, against which future information can be compared and conclusions on performance drawn.

4.3.2 Criteria Used when selecting Indicators

The following criteria were developed for use in the selection and wording of indicators. These were developed from criteria proposed by DEAT for State of Environment Indicators; by PDG in previous work to identify Key Performance Indicators for local government; and by the World Bank for Environmental Performance Indicators³.

- **Relevance:** to the context (in this case the environmental problem and context within which it occurs) and the requirements within legislation.
- **Alignment:** The principle of alignment requires that if there is more than one user of information, there needs to be alignment between them so that indicators developed complement one another. In this case, this means that this national set of local level EPIs developed by DEAT, should complement any indicators already being used by provincial and local government.
Duplication of effort should be minimised. Where national or provincial departments are already gathering local information, this should be made known to the municipalities. It is a waste of resources for municipalities to measure and report on the same information being gathered nationally.
- **Limitation in Number:** It is most effective to be selective and use smaller sets of well-chosen indicators. Using too many indicators risks diluting their usefulness.
- **Regular Refinement:** The principle of regular refinement is particularly important in the SA context as it acknowledges that context is not static and therefore performance indicators developed must be responsive to change and allow for refinement.

³ Segnestam, L 1999. Environmental Performance Indicators: A second edition note – Environmental Economics Series. Paper No. 71 The World Bank.

- **Incremental Approach** (Building on Strengths): Related to the above two principles is that of 'building on strengths'. Experience from the developing world highlights that performance indicators need to 'start small' and build confidence before being extended to more complex areas that are difficult to measure. This implies that performance indicators are prioritised. This sequencing of implementation depends on the perceptions of users as to whether satisfactory benefits are being realised in return for the resources employed. National EPIs for local level reporting should be developed incrementally, starting with a small, simple set that is relevant to all municipalities.
- **Availability and accessibility** (data must be available and accessible, especially in the long term)
- **Feasibility: practical methods of data collection and realistic data collection costs.** EPIs must be practical and realistic and their cost of collection and development therefore needs to be considered. This may lead to trade-offs between the informational content of various indicators and the cost of collecting them. These trade-offs will obviously vary across municipalities and government departments and will depend heavily on institutional capacity. One way of deciding which indicator to collect or develop is to compare the costs of collection/development to the benefits of the increased information to be contributed by the indicator.
- **Clear identification of causal links** (especially important in some environmental problems where it can be very difficult to establish clear cause and effect links – for example, air pollution from a given source and morbidity and mortality figures in a local population). Where causal links are not clear, it will be necessary to fall back on indicators which are more general in nature, perhaps describing the state of the environment and not the impact.
- **High Quality and Reliability:** Indicators, and the information they provide, are only as good as the data from which they are derived. Ideally, an indicator should represent a reliable measure, that is, it should have a sound statistical and scientific basis. Metadata should define the quality of the data in the data set and include information on sensitivity, uncertainty, variability, precision, accuracy and error.
- **Appropriate Spatial and Temporal Scale:** a project, policy or other activity may have an environmental impact far beyond the area in which it is implemented. There may also be lags in time before effects are felt and noticed. Change in the long term status of biodiversity, for example, often only manifest themselves over time periods much longer than some projects or activities. Where feasible, it is therefore highly desirable that the selected indicators take into account the appropriate spatial and temporal scale. It is also desirable to have sufficient historical data to identify trends over time.

4.4 Categorisation of Indicators

An initial 'broad set' of indicators was developed following the framework and methodology above. The next stage of the process was to categorise this broad set into several sets of indicators in order to reflect the differences in types of local government and levels of capacity, resources, available data and so on, at the

present time. As mentioned above, this categorisation process was carried out at the project workshop, with the involvement of stakeholders.

Division of the indicators was a filtering process that took place in stages.

The Broad set was first divided into those indicators for **local government** – and those for other spheres of government.

The local government indicators were then divided into:

- ? A **core set** : these are indicators which are relevant to all municipalities and are also of interest at the national level (in other words, they can be aggregated up to provincial and then national level and will help DEAT achieve a country-wide picture of performance).
- ? A 'peripheral' – or non-core set. These are the indicators which are not relevant to every municipality – but may be more suitable for use by municipalities with particular characteristics (eg. Coastal). It also contains those indicators which were not felt to be of relevance at the national level (i.e. will tell local government about its performance against local bylaws, responsibilities and so on, but which have little impact at a national level). Where possible and obvious, the 'peripheral' set also notes those indicators that apply only to certain tiers of local government, but not to all of them.

A further categorisation of the core set was also made – to reflect the practicality of collating information on these indicators at the present time. Two categories were identified:

- ? **Pragmatic** indicators: those for which information can be collated by all municipalities at the present time.
- ? **Ideal indicators**: those for which information cannot be collated at the present time as additional resources and/or capacity are required to enable this to happen. Ideal indicators, however, are those for which municipalities should be able to collect information in time – they are not the same as indicators which are impractical or 'impossible to measure' – these have already been eliminated from the draft list during the consultation process.

Figure 7 overleaf illustrates the decisions made for each indicator when carrying out this categorisation process.

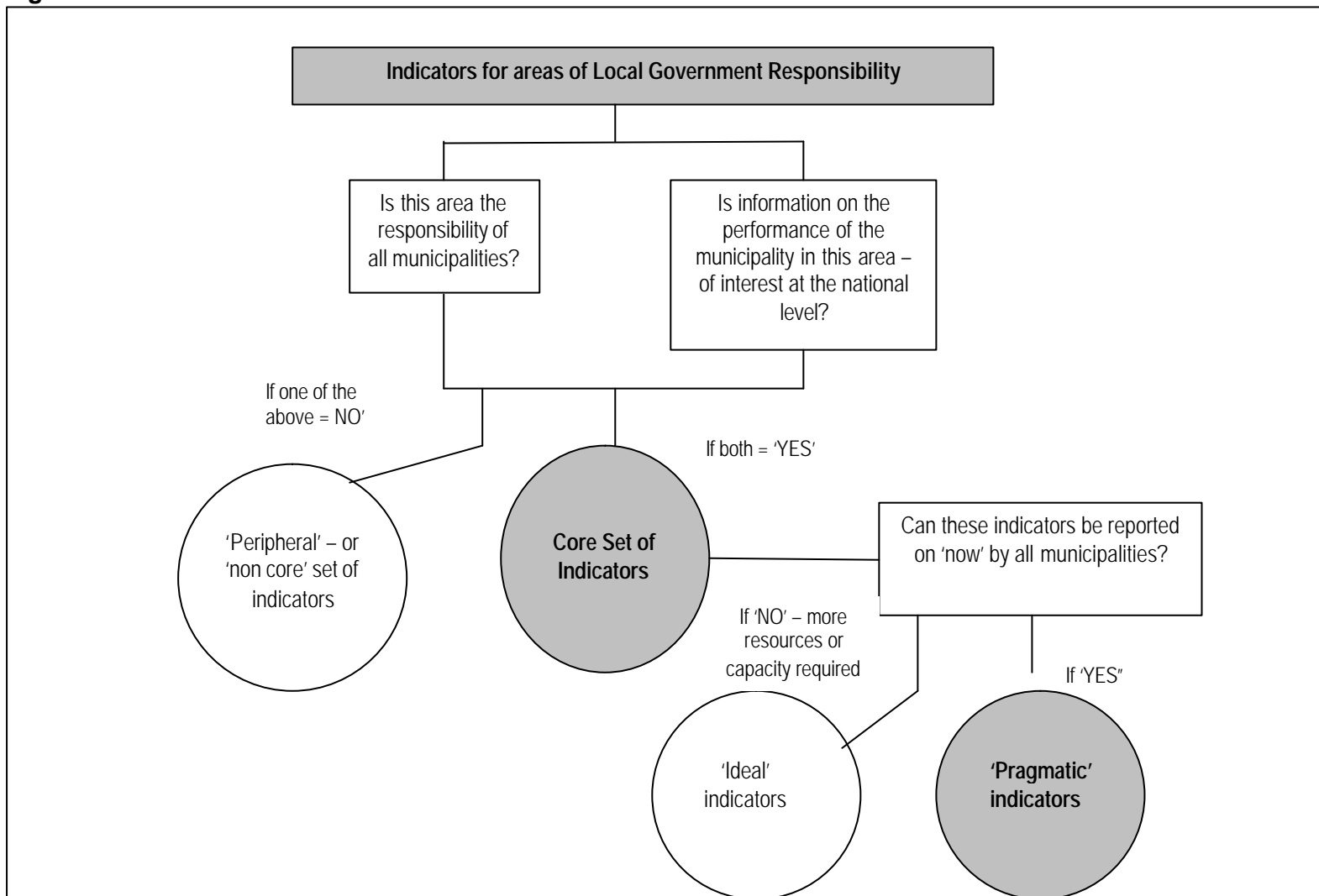
It should be noted that the categorisation decisions were made based on the experience, resources and capacity of the municipalities represented at the workshop. Most of the municipalities present had dedicated environmental staff and had resources and staff allocated to environmental issues. Thus it is likely that the categorisations made at this workshop do not reflect the situation across the country within small municipalities and those with little or no resources dedicated to environmental management. Thus this categorisation should not be seen as appropriate for application across the country and should be subject to further and extensive consultation with stakeholders.

4.5 Alignment with reporting systems and other sets of indicators

Following the categorisation of the indicators, it was important to check the alignment of the indicators with two important areas and to report on the implications of this.

- ? **Existing reporting systems:** The brief of this project is to provide indicators which can be integrated into IDP, EIP/EMP, Human Rights Commission and SoE reporting processes. This has been checked for SOE, EIP and IDPs and the indicators selected are compatible with these processes. The SA Human Rights Commission is in the process of carrying out a thorough review of its indicators of performance of government in fulfilling the 'environmental right'. Their revised set of indicators for 2004 and beyond is not yet available for comparison with this set.
- ? Other sets of indicators. One of the expectations for the indicators developed through this project is that they can be used to aggregate information up to provincial and national reporting levels. In order to track those indicators that may be used at provincial level or by other departments, the 'destination' of indicator information has been noted for each i.e. where information should be sent to by local government. This should also allow the identification of those indicators which may be part of additional indicator sets held by other national departments.

Figure 7: Process for selection of Indicators



5. Indicators

The draft indicators chosen via this project are presented in total in Table 1 in Appendix C. Below, the indicators for each broad 'performance area' of local government are presented, accompanied by the following information:

Performance area (or in some cases, sub-performance area)

Source of performance area: refers to the legislation or other source mandating this as a performance area

Code: each indicator is given a code

Who: refers to who will be responsible for reporting the indicator in terms of sphere of government (province or local); tier of local government (where this is clear) and department of local government (where this is known)

Indicator: refers to the indicator itself

Type of Indicator: Core/Peripheral

Practicality: Pragmatic/Ideal

Where necessary there could be a narrative accompanying each indicator which explains any pertinent issues or trends.

A summary table of the indicators within the main categories Core/Peripheral is provided at the end of this chapter.

5.1 Climate and Air

5.1.1 Air Quality

Air quality is an extension of the mandate for 'air pollution' given to local government under Schedule 4b and 5b of the Constitution. Specific requirements of local government for reporting on air quality, emissions and other air pollution related indicators will be specified in the new Air Quality Bill. Thus the indicators below are only provisional suggestions and may have to be modified once the air quality legislation and accompanying norms and standards are published.

Indicators for local government mostly apply to A and B municipalities (i.e. Metropolitan and Local municipalities)

This is a key, priority area of environmental management for all municipalities.

Performance Area	Code	Who	Indicator	Core/ Peripheral	Type	Practicality
Air Quality	AQ1	Local A,B	Is there an adopted Air Quality Management Plan?	Core (when AQ Bill is promulgated)	Compliance	Pragmatic
	AQ2a	Local A, B	% of licensed industries which did not comply with	Core (when AQ Bill is promulgated)	Output	Pragmatic

Performance Area	Code	Who	Indicator	Core/ Peripheral	Type	Practicality
	AQ2b		license conditions. % of these for which there was enforcement action by the authority)		
	AQ3	Local A,B	% of key pollutants (as identified for the local areas) monitored according to the specifications in the National Air Quality Framework Note: clarity will be needed as to whether this is collected just in hotspots or across the municipality as a general indicator.	Core	Output	Pragmatic
	AQ4a AQ4b	Local A,B	Ambient concentrations of key pollutants Degree of exceedence of national standards for ambient concentrations of key pollutants (standards in preparation)	Core	Outcome	Ideal (not yet pragmatic for small municipalities)
	AQ5a AQ5b	Local A, B	Number of air quality related complaints received by local authorities (no. complaints/year) % of these for which there was enforcement action	Core	Output	Pragmatic
	AQ6	Local A,B	Number of staff (FTEs) responsible for monitoring air quality in the municipality	Core	Input	Pragmatic

Source of Data: AQ1 – AQ5 should be available via monitoring carried out by local government. Information should be reported to the relevant provincial

departments and to DEAT. AQ6 is a simple input indicator that should be reported by municipalities to DEAT on an annual basis (or more frequently if required).

Frequency of Reporting: Most of the above can be reported on an annual basis. AQ2 and AQ5 could be reported on more frequently (quarterly) if necessary.

5.1.2 Climate Change/Greenhouse Gases

This is an issue of concern for many municipalities, but it was not identified as an area which was core for them to measure. Nor, in many cases would it be possible for municipalities to provide such information. Thus no indicators were developed for this issue in this project.

5.2 Noise Pollution

This is a local government matter under Schedules 4b and 5b of the Constitution and is also covered under the Air Quality Bill. Indicators were developed for this issue – but these were not considered ‘core’ indicators as information on noise pollution was not considered important for aggregation to the national level. The two ‘peripheral’ indicators are however provided below for information.

Performance Area	Code	Who	Indicator	Core/ Peripheral	Type	Practicality
Noise Pollution	NP1a	Local A,B	Number of noise pollution related complaints received by the local authority	Peripheral	Output	Pragmatic
	NP1b		% of these complaints for which there was enforcement action			

5.3 Waste and Waste Management

Waste and waste management in general is seen as one of the core mandates of local government under Schedules 4b and 5b of the Constitution (this makes refuse removal, refuse dumps and solid waste removal a local government matter) and under the White Paper on Integrated Pollution and Waste Management and Environmental Conservation Act. Many of the indicators included for this area are thus core indicators. Provincial government also has responsibility for some waste issues and therefore indicators to be reported on by provinces have also been included.

This performance area has been divided into three sub-areas: waste generation (data on amount of waste generated in an area); waste services (performance indicators for provision of services) and waste/reduction and management (which includes such issues as recycling, landfill sites and so on).

5.3.1 Waste Generation

Performance Area	Code	Who	Indicator	Core/ Peripheral	Type	Practicality
Waste Generation	WG1	Local	General waste produced per capita per year	Core	Outcome/ SoE	Pragmatic
	WG2	Local	Hazardous waste produced per sector per year Note: it has not been determined whether this should be measured in mass or volume. Clarity on this matter should be provided with these indicators before being sent to municipalities.	Core	Outcome/ SoE	Pragmatic

Source of Data: Information for both of the above should be held by Municipal solid waste departments of local government and reported to provinces and DEAT.

Frequency of Reporting: Annually

5.3.2 Waste Services

Performance Area	Code	Who	Indicator	Core/ Peripheral	Type	Practicality
Waste Services	WS1	Local	% of households eligible for kerbside refuse removal which receive this service on a weekly basis	Core	Output	Pragmatic

Source of Information: This should be provided by local government and reported to DPLG. DEAT should be able to obtain this information from DPLG as required.

Frequency of Reporting: Annual

5.3.3 Waste Reduction and Management

Performance Area	Code	Who	Indicator	Core/ Peripheral	Type	Practicality
Waste Reduction and Management	WRM 1a	Local	Number of incidents of illegal dumping	Core	Output	Pragmatic
	WRM 1b		% of incidents for which enforcement			

Performance Area	Code	Who	Indicator	Core/ Peripheral	Type	Practicality
			action was taken			
	WRM 2	Local	Amount (tonnes) of illegal dumping cleared by local authority	Core	Output	Pragmatic
	WRM 3	Local	Recycling: % of general waste recycled on an annual basis (mass or volume?)	Core	Output	Pragmatic
	WRM 4	Local	Landfill Sites: % of municipal landfill sites licensed according to the terms of the Environmental Conservation Act	Core	Compliance	Pragmatic
	WRM 5	Local	Available landfill lifespan	Core	Output	Pragmatic
	WRM 6	Province, DWAF and some locals	% of licensed landfill sites that are being monitored for compliance (according to specification in the license)	Core	Compliance	Pragmatic

Source of Data: Local government should hold information on all of the above, with the exception of WRM6. The information for this indicator should come from provincial government and from DWAF regional offices (who issue the licenses) although some of the larger municipalities may hold such information. Information should be sent to both DWAF and DEAT for all of the above.

Frequency of Reporting: Annually

5.4 Storm water management

This is a local government matter under Schedules 4b and 5b of the Constitution but data on the provision of storm water management was not considered of interest to DEAT on a national level. Thus the indicator developed for this performance area is peripheral. It is included below as it may be of use to municipalities for monitoring their performance in this area.

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
Storm water management	SWM 1	Local	% of storm water drains that are maintained annually	Peripheral (urban only; not of national interest)	Output	Pragmatic
	SWM 2	Local	No. of dwellings located within the 50 year flood line	Peripheral	Outcome – indicator for level of risk	Ideal/Pragmatic (needs consultation to determine this)

5.5 Water and Sanitation

5.5.1 Water and Sanitation Services

Reporting on the provision of water supply and sanitation services is a core performance area of those municipalities (A, B and C) who are water service authorities. This information is of primary interest to DWAF but is also collated by DPLG. The first two indicators below are already key performance indicators for local government (within the set reported to DPLG). The third is an outcome indicator for provision of clean water and sanitation – but this may be accompanied by other indicators of population health related to water and sanitation which are collected by the Department of Health.

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
Water and Sanitation Services	WSS 1	Local: water services authority	% households with access to potable water within 200m of dwelling (or on site)	Core	Output	Pragmatic
	WSS 2	Local: water services authority	% of households with at least a basic levels of service as determined by the WSA service levels policy	Core	Output	Pragmatic
	WSS 3	Local	Number of reported cases of cholera (per year)	Core	Outcome	Pragmatic
	WSS 4	Local	Number of reported cases of sewage spillage into water courses	?	Output	? Consultation required to determine whether this is c/p and i/pr

Source of Data: Data on WS1 and WS2 should be held by the water service authorities and passed to DWAF and DPLG (under existing reporting systems). It

is not envisaged that Water Service Authorities must also now report this information to DEAT. DEAT can access this information from DWAF when required. Information on cholera outbreaks is also already provided to the Department of Health and DEAT can also access this information from this department when required.

Frequency of Reporting: Annually

5.5.2 Water Quality

Monitoring of water quality in a local area is the responsibility of DWAF regional offices and water utilities. However, during consultation processes for this project, it was suggested that local authorities should be aware of information on water quality and request this from DWAF. A small number of suitable water quality indicators have thus been included below. Municipalities thought that it might also be useful to include an indicator asking simply “Is water quality monitoring for the municipal area being carried out” – as many are not sure if it is. This indicator can always be included by DEAT in a list at a later date if required (following additional consultation with municipalities and DWAF).

Performance Area	Code	Who	Indicator	Core/ Peripheral	Type	Practicality
Water Quality	WQ1	DWAF	% exceedance of DWAF guidelines for selected groundwater quality variables (total nitrogen, total phosphorus, conductivity and faecal coliforms)	Core	Outcome	Pragmatic
	WQ2	DWAF	% exceedance of DWAF guidelines for selected surface water quality variables (total nitrogen, total phosphorus, conductivity and faecal coliforms)	Core	Outcome	Pragmatic

Source of Data; DWAF regional offices and water utilities. Information can be passed to local authorities for their own information and then on to DWAF (national). DEAT can obtain information from DWAF on these indicators as required.

Frequency of Reporting: Annually

5.6 Municipal Parks and Open Space

This is a local government matter under Schedules 4b and 5b of the Constitution – where local government is responsible for the provision and maintenance of municipal parks and recreation areas, both of which are forms of open space. However, the provision and maintenance of these areas is not a core environmental activity – but is a planning and amenity issue, unless the open

space is of value for conservation. Thus the indicators developed for this area are not considered core environmental indicators apart from those which relate to spaces with conservation value. For areas with conservation value the greatest issue seems to be 'infilling' of such areas by development and so an indicator has been included to assess this.

To make this distinction, municipal parks and open spaces within a municipal area will have to be 'categorized' into those with conservation value (such as riparian areas and so on) and those that do not (for example, swing parks).

Peripheral indicators are included below for information. They may be of use to municipalities for monitoring performance in provision and maintenance of amenity areas.

Performance Area	Code	Who	Indicator	Core/peripheral	Type	Practicality
Municipal Parks and Open Spaces	POS 1a	Local	Area (hectares) of municipal parks, recreation areas or other open spaces within the municipal area with conservation value.	Core	Output	Pragmatic
	POS 1b		% of this area infilled by development on an annual basis			
	POS 2	Local	% of dwellings which fall within a 2km radius of a municipal park or recreation area (measuring provision of recreation areas by planning authority). Note: 2km is included here as a standard – but this may not be the appropriate standard to use.	Peripheral	Output	
	POS 3	Local	Area (hectares) of municipal parks, recreation areas or other open space per capita within the municipal area	Peripheral	Output	
	POS 4	Local	Level of community satisfaction with access to and quality of municipal parks and recreation areas (survey generated data)	Peripheral	Outcome	Ideal

	POS 5	Local	% of municipal budget allocated to provision and maintenance of municipal parks and recreation areas	Peripheral	Input	Pragmatic
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Source of Information: local government planning departments. Information from the peripheral indicators will mostly be of interest to the local authorities themselves. Information on the core indicator may be of interest to DEAT and provincial departments of environment.

Frequency of Reporting: Annually

5.7 Biodiversity and Protected Areas

Biodiversity is not mentioned as a local government matter under the Schedules 4b and 5b of the Constitution. The Biodiversity Act, however, does confer some responsibility for management of biodiversity, control of invasive alien species and so on at the local level, to local government. Officially designated local protected areas (it could be argued) are covered by the definition of 'local amenities'⁴ – which are a local government matter under Schedules 4b and 5b. In addition to the obligation to provide, preserve, manage and maintain such areas under the Schedules, the Protected Areas Act also provides specific responsibilities on local government for the local protected areas within their boundaries. National and provincial protected areas which lie within a municipality remain the responsibility of national and provincial parks organisations.

The Protected Areas Act contains a provision for the production of indicators for monitoring the effectiveness of management of protected areas. These have not yet been produced but when available those applicable to local protected areas can be added to the list below.

5.7.1 Protected Areas

The purpose of many of these indicators is to allow DEAT to aggregate information to come up with figures for the total area under protected area designations across the country – and for the % of land highlighted as of 'conservation importance' which currently lies within officially designated areas. They can be used to monitor performance of municipalities in recognising and officially protecting locally important areas by tracking the change in area of protected area or the % cover of protected areas within a municipal area over time. Quality of the management of these areas is more difficult to measure. As mentioned above, specific indicators for this may be produced under the Protected Areas Act. The IUCN framework for monitoring the effectiveness of protected areas management⁵ may also help municipalities, provinces and DEAT

⁴ Local Amenities: land and buildings owned by the municipality for its scenic, natural, historical and cultural value of interest. Municipalities must provide, manage, preserve and maintain these amenities (MDB 2003).

⁵ Hockings, M., Stolton, S and Dudley, N 2000. *Evaluating Effectiveness: A Framework for Assessing the Management of Protected Areas*. Best Practice protected Area Guideline Series No. 6. IUCN, World Commission on Protected Areas.

in this regard. The Protected Areas Act does contain a requirement that all local authorities with officially designated local protected areas, produce a management plan for these areas – and thus this has been included as a simple compliance indicator.

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
Protected Areas	PA1	Local (all) Planning & Parks departs	Area (hectares) of municipal area under 'local protected area' status	Core	Output	Pragmatic
	PA2	Local (all) Planning & parks departs	% of municipal area under local protected area status	Core	Output	Pragmatic
	PA3	Local (all) Planning & parks departs	% of land of 'conservation importance' in the municipal area under local protected area status	Core	Output	Pragmatic
	PA4	Local (all) Planning & Parks Departs	% of local protected areas with a current/adopted management plan and associated authorised budget	Core	Output	Pragmatic
	PA5	Local Survey required	Level of user satisfaction with access to and quality of local protected areas	Peripheral	Outcome	Ideal

Source of Data: in most cases the data will come from the local government planning and/or parks departments. Data should be sent to provinces and to DEAT.

Frequency of Reporting: Annually

5.7.2 Invasive Alien Species

The Biodiversity Act confers a responsibility on local government to draw up plans for the monitoring, control and eradication of Invasive Alien species on municipal land. Thus, the performance indicators here are related to municipal land – and are not related to the area of IAS in a municipal area as a whole, or the clearing activity being carried out across a municipality as this will be taking place on land owned by many different people. Composite figures for this information will have to be obtained by DEAT directly from Working for Water (although in some cases, local government may keep such information).

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
Invasive Alien Species	IAS1 a	WfW Local (all)	Area (hectares) of municipal land currently invaded by alien species	Core	Output	Pragmatic
	IAS1 b		% of municipal land currently invaded by alien species			
	IAS2 a	WfW Local (all)	Area (hectares) of IAS cleared from municipal land (in this reporting year)	Core	Output	Pragmatic
	IAS2 b		% of municipal land currently invaded by alien species which has been cleared (in this reporting year)			
	IAS3	Local (all) Plan ning Dept	Is there a current adopted Invasive Species Monitoring, Control and Eradication Plan that is integrated and aligned to the IDP?	Core	Compliance	Pragmatic

Source of Data: As noted above, local government should be able to provide information for land owned and managed by them, although they may rely on Working for Water as a primary source of this information. Total figures for municipal areas will have to be obtained from WfW – it is unlikely that a municipality will have such data. DEAT will be able to get national and regional figures on IAS from Working for Water directly.

Frequency of Reporting: Working for Water keeps information on its own Key Performance Indicators on a quarterly basis and produces annual reports containing composite regional and national information. Local government should be able to provide information on an annual basis on areas cleared from its own

land and every 5 years on the production of a IAS Monitoring, Control and Eradication Plan.

5.7.3 Species and Ecosystem Management and Change

It is not within the core mandate of local government to report information on the extent, management and change in species and ecosystems found within a municipal area. This responsibility falls to the relevant province. Thus the indicators below can be reported on for a local municipal area by provincial government. These are all outcome as such are useful benchmark indicators and can help to identify serious trends and species or ecosystems under threat in a local area. However, changes in these indicators may be due to several factors, not just the quality of management or protection by government, and are thus of limited use as performance indicators. They are, however, typically contained within a State of Environment Report.

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
Species and Ecosystem Management and Change	SEM C1	Province	Threatened and extinct species per taxonomic group	Core	Outcome / SoE	Pragmatic
	SEM C2	Province	Endemic species per taxonomic group	Core	Outcome / SoE	Pragmatic
	SEM C3	Province	Population trends of selected species	Core	Outcome / SoE	Pragmatic
	SEM C4a SEM C4b	Province	Area (hectares) of sensitive, vulnerable, highly dynamic and stressed ecosystems in the municipal area – by ecosystem type (e.g. wetland, dunes etc.) % of each of the above which is degraded or transformed on an annual basis	Core	Output	Pragmatic

Source of Data: provincial departments of environment

Frequency of Reporting: 5 yearly or greater (linked to how frequently provinces update survey information)

5.8 Environmental Governance

This is one of the most important areas of environmental performance to measure – but it is also one of the most difficult. Local government has a series of obligations under the Bill of Rights, the Constitution, Environmental framework

legislation (such as NEMA) and sectoral legislation, to ensure that it protects the local environment and that its activities and those of others are not detrimental to the environment or the environmental right of its citizens. The IDP process identifies the environment as a 'cross-cutting issue' that must be incorporated into all elements of municipal planning. Guidance on how this should be done remains vague. Whilst municipalities may attempt to address environmental issues through this process and others – the quality of environmental planning is unmeasured as is the question of whether plans are then implemented as they should be.

It has been a limitation of this project that few satisfactory indicators for the measurement of performance in environmental governance have been developed. A few simple 'compliance' and input indicators have been suggested below, but it is recommended here (and in section 6 below) – that this is a very important area of work and requires urgent further attention by DEAT and DPLG.

Indicators within this section are divided into the following sub-performance areas: NEMA principles; Environmental Planning; Agenda 21; Environmental Reporting; Environmental Education and Awareness Raising.

5.8.1 NEMA Principles

A set of indicators is required to monitor performance (of all spheres of government) in adhering to the NEMA principles. This was identified as an area of work outside the scope of this project. However, it should be possible at this stage to ask municipalities whether they have carried out an internal audit of their plans, policies and programmes in this regard.

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
NEMA Principles	NEM A1	Local	Has the municipality audited its plans, policies and programmes for adherence to the NEMA principles?	Core	Compliance	Peripheral

Source of Data: local government planning department

Frequency of Reporting: on production of new plans, policies or programmes; 5 yearly (with production of IDP).

5.8.2 Environmental Planning

The following are simple compliance indicators, which measure simply whether a municipality has carried out a requirement of legislation. No indicators were developed to assess the quality of planning carried out or whether plans were implemented satisfactorily.

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
Environmental Planning	ER1	Local (all)	Has a strategic environmental assessment of the impact of the Spatial	Core	Compliance	Pragmatic

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
			Development Framework for the municipality been carried out?			
	EP2	Local (all)	For each of the following, is there a current, adopted plan that is integrated and aligned to the IDP? <ul style="list-style-type: none"> - Air Quality Plan - Integrated Waste Management Plan - Oil Spill Contingency Plan - Water Services Development Plan - Plan to provide access to basic water services - Invasive species monitoring, control and eradication plan 	Core	Compliance	Pragmatic
	EP3	Local (all)	Is the IDP aligned to the National Biodiversity Strategy and the Bioregional Plan (where one exists)	Core	Compliance	Pragmatic

Source of Data: Local Government Planning Department

Frequency of Reporting: 5 yearly

5.8.3 Agenda 21

Agenda 21 is a process that can be adopted and implemented by local government on a voluntary basis. It contains many principles of participation, sustainability and so on, which if implemented, contribute to good environmental governance. Although it is not mandatory, information on which municipalities have adopted and are implementing the process is of interest to DEAT at a national level and thus a simple yes/no compliance indicator is suggested here for inclusion in the core set.

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
Agenda 21	A1	Local (all)	Has the municipality officially adopted the Agenda 21 process and principles?	Core	Compliance	Pragmatic

	A2	Local (all)	Is there an approved implementation plan for Agenda 21?	Core	Compliance	Pragmatic
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Source of Data: Local Government Planning or environmental management department

Frequency of Reporting: Once off: on adoption of Agenda 21 or approval of plan

5.8.4 Environmental Reporting

As for above, production of a State of Environment Report is voluntary for local authorities. But, again it will be useful for DEAT to identify how many municipalities are preparing such plans. Thus this indicator has been included in the core set.

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
Environmental Reporting	EP1	Local (all)	Has the municipality produced a current State of Environment Report?	Core	Compliance	Pragmatic

Source of Data: Local government environmental departments. Information should be passed to province and DEAT

Frequency of Reporting: 5 yearly (frequency of updates of SOE reports)

5.8.5 Environmental Education and Awareness Raising

Performance Area	Code	Who	Indicator	Core/Peripheral	Type	Practicality
Environmental Education	EEed1	Local (all)	What is the budgetary allocation (%) for environmental education and awareness raising per capita	Core	Input	Pragmatic

Source of Data: Local government environmental departments

Frequency of reporting: Annually.

5.9 Summary List of Indicators

(These are all 'pragmatic' indicators – unless otherwise marked (shaded box = ideal indicators) and are all relevant to local authorities unless otherwise marked with a P* (provincial responsibility) or DWAF* (DWAF regional responsibility))

Core Indicators:

Air/Climate
Is there an adopted Air Quality Management Plan?
% of licensed industries with did not comply with license conditions
% of these for which there was an enforcement response by the authority
% of key pollutants monitored according to the specifications in the National Air Quality Framework
Ambient Concentrations of Key Pollutants
Degree of exceedence of national standards for ambient concentrations of key pollutants
Number of air quality related complaints received by the local authority (no. /year)
% of these for which there was an enforcement action
Number of staff (FTEs) responsible for monitoring air quality in the municipality
Waste Management
General waste produced per capita per year
Hazardous waste produced per sector per year
% of households eligible for kerbside refuse removal which receive this on a weekly basis
Number of incidents of illegal dumping
% of these incidents for which enforcement action was taken
Amount (tonnes) of illegal dumping cleared by the local authority
% of general waste recycled on an annual basis
% municipal landfill sites licensed according to the terms of the Environmental Conservation Act
Available landfill lifespan
% of licensed landfill sites that are being monitored for compliance (according to specification in license)
Water, Sanitation & water quality
% households with access to potable water within 200m of dwelling (or on site)
% of households with at least a basic level of service as determined by the WSA service levels policy
Number of recorded cases of cholera
% exceedence of DWAF guidelines for selected groundwater quality variables (DWAF*)
% exceedence of DWAF guidelines for selected surface water quality variables (DWAF*)
Municipal Parks & open space
Area (hectares) of municipal parks, recreation areas or other open spaces within the municipal area with conservation value
% of this area infilled by development on an annual basis
Protected Areas
Area (hectares) of municipal area under 'local protected area' status
% of municipal area under local protected area status
% of land of 'conservation importance' in the municipal area under protected area status
% of local protected areas with a current/adopted management plan and authorised budget
Invasive Alien Species
Area (hectares) of municipal land currently invaded by alien species
% of municipal land currently invaded by alien species
Area of IAS cleared from municipal land (this reporting year)
% of municipal land currently invaded by alien species which has been cleared (this reporting year)
Is there an adopted Invasive Species Monitoring, Control and Eradication Plan that is integrated and aligned to the IDP?
Species and Ecosystem Management and Change
Threatened and extinct species per taxonomic group P*
Endemic Species per taxonomic group P*
Population trends of selected species P*
Area (hectares) of sensitive, vulnerable, highly dynamic and stressed ecosystems in the municipal area (by ecosystem type) P*
% of each of the above which is degraded or transformed on an annual basis P*
Environmental Governance
Has the municipality audited its plans, policies and programmes for adherence to the NEMA principles?
Has a strategic environmental assessment of the impact of the Spatial Development Framework for the municipality been carried out?
For each of the following, is there a current, adopted plan that is integrated and aligned to the IDP?: Air Quality Plan, Integrated Waste Management Plan; Oil Spill Contingency Plan; Water Services Development Plan; Plan

to provide access to basic water services; Invasive Species monitoring, control and eradication plan
Is the IDP aligned to the National Biodiversity Strategy and the Bioregional Plan?
Has the municipality officially adopted the Agenda 21 process?
Is there an approved implementation plan for Agenda 21?

Peripheral Indicators

As above, These are all 'pragmatic' indicators – unless otherwise marked (shaded box = ideal indicators) and are all relevant to local authorities unless otherwise marked

Noise Pollution
Number of noise pollution related complaints received by the local authority
% of these complaints for which there was enforcement action
Storm Water Management
% of storm water drains that are maintained annually
No. dwellings within the 50 year flood line
Beaches
% of beaches with blue flag status
Municipal Parks and Open Space
% of dwellings that fall within a 2km radius of a municipal park or recreation area
Area (hectares) of municipal parks, recreation areas and other open space per capital within the municipal area
Level of community satisfaction with access to and quality of municipal parks and recreation areas
% of municipal budget allocated to the provision of and maintenance of municipal parks and recreation areas
Protected Areas
Level of user satisfaction with access to and quality of local protected areas

6. Conclusions and Recommendations

This section briefly outlines conclusions and recommendations arising from the consultation process and based on the experience of PDG during this project and other projects related to local government systems, processes and so on.

Conclusions are provided and where appropriate, are accompanied by recommendations for further work by DEAT (or other departments) or general recommendations as to how to address the situation described.

- ? **Lack of clarity on mandate of local government:** The environment is not listed as a 'local government matter' within Schedules 4b and 5b of the Constitution, although some local government matters are clearly closely related to the environment (such as air pollution). This lack of direct mandate to local government contributes to a widespread confusion as to what the mandatory environmental responsibilities of local government are. This may in turn contribute to the low priority the environment seems to be given by local authorities (see below).
- o Recommendation: DEAT and DPLG work together to try to clarify the local government responsibilities for the environment.
 - o Recommendation: DEAT/DPLG consider methods of ensuring that environment is prioritised appropriately by local government (some parties have proposed including the environment (and an adequate definition of this) within the local government matters contained within Schedule 4b and 5b of the Constitution). However, as a Constitutional Amendment may be difficult and lengthy process to complete, an administrative consensus would be a better option to pursue.
- ? **Low profile of the environment within local government** – with resulting problems of **low budget allocations, lack of capacity** and **poor quality of environmental planning** by local government.

Low profile: Environmental management officials within local government struggle to get their Councils to consider 'the environment' and related issues as a priority. This results in low profile for environmental issues in planning and budgeting processes. Stakeholders consulted in this project requested assistance from DEAT to help raise the profile of the environment within local government generally.

Lack of capacity: It must be recognised by DEAT that municipalities have varying levels of capacity to plan and manage their local environment, use indicators, and measure, analyse and report on them. It is in DEAT's interest as a regulatory authority to invest in local government capacity to do this.

Poor quality of environmental planning by local authorities. It is observed that with a few exceptions, the lack of environmental management capacity within local authorities and the low priority the environment is given by local government, lead to a low quality of environmental planning and a low profile for the environment within IDPs. The role of IDPs was noted as extremely

important as it can in turn help to determine the priority given to environmental issues by local government. The environment is considered a 'cross-cutting theme' within an IDP as opposed to a specific sector. As such it is supposed to be integrated into all elements of the IDP. DPLG guidelines do exist as to how the environment should be addressed in an IDP but these are vague. The quality of attention given to the environment within IDPs varies greatly across the country. Municipalities would benefit from additional guidance from DEAT as to how the environment should be addressed in an IDP, and specifically, what the national department would like to see in an IDP.

- Recommendation: DEAT and DPLG work together to produce a document providing detailed guidance on how 'the environment' should be addressed at the local government level. This could be in the form of a booklet and would provide a 'toolkit' to address issues such as: raising the profile of the environment within local government; effectively including the environment within an IDP (what DEAT wants IDP to address); useful indicators for environmental performance and guidance on how to measure these. Thus the indicators would form only a part of a package that addresses the bigger picture of delivery of environmental management at the local level.
- ? **Future Consultation:** DEAT has stated that it would like the core set of indicators produced by this project to be seen, at this stage, as a voluntary 'toolkit' to help municipalities in their performance in environmental management. Before the indicators are published for this purpose, additional and extensive consultation should be carried out with all municipalities and other key stakeholders (such as SALGA and DPLG) to correctly identify the most useful set of indicators possible. This project only involved a small number of municipalities in its consultation process and so the understanding of what is a 'core' indicator and what is a 'pragmatic (do-able!) indicator as presented in this document, may be unrepresentative of the situation across the nation. Various silos within DEAT are also working on new legislation and regulations, standards and so on which stem from this (air quality, biodiversity, protected areas etc.) and indicators may be developed in the course of this work. Thus the consultation process going forward must also engage with the relevant sections of the department itself.
- Recommendation: DEAT must engage in further and more extensive consultation on core indicators for local level reporting
- Recommendation: DEAT must contact and engage specifically with SALGA and DPLG on the issue of environmental indicators and how best to roll-out any indicators produced to local authorities. SALGA is currently carrying out work in this area and can provide DEAT with guidance on how best to proceed on this matter.
- ? **More detailed advice on methodology for indicators still required.**

Any list of indicators published for use by local governments, must be accompanied by detailed instructions on how the indicator information should be collected (methodology), how often (frequency), standards and targets for the indicators; likely sources of data, format to be used for reporting the data and so on. These detailed instructions are vital to ensuring that data collected

from across the country and through time is consistent and comparable and can be aggregated up to provincial and national levels. There are various templates available throughout the world on how to best present these instructions.

- Recommendation: DEAT must prepare detailed guidance to accompany the indicators to ensure consistency and comparability of data collected – and to advise municipalities on resources, equipment and so on that may be required.
- ? **Encouraging and Enabling the voluntary use of indicators.** In addition to producing a guide to environmental indicators as suggested above, it would be useful for DEAT to set up a learning network of environmental practitioners and managers that would facilitate learning about the implementation of these indicators. It would be an opportunity for DEAT to contribute to municipal capacity building in the area whilst learning more about municipalities and how they function. This learning network could be run through existing learning networks (eg. the ones implemented by SALGA) to start with. Similarly, they need not be confined to indicators, but could use these as a starting point. These networks should not be limited to local government personnel, but should include all those working with indicators across all spheres of government.
 - Recommendation: initiate a learning network for environmental indicators.
- ? **Following a ‘mandatory’ route:** DEAT may decide that there would be merit at some stage, in making some environmental indicators mandatory. If this is the case, this process would have to be done in close association with DPLG, SALGA and following extensive consultation with municipalities and provinces. One advantage would be that Municipal councils often respond positively if activities are seen to be binding on the council and are often more willing to set aside budgets to undertake legislated activities. However, DEAT would have to select key indicators very carefully and with clear understanding of the reporting capacity of all municipalities.
 - Recommendation: If DEAT wants to pursue a mandatory approach for some key indicators, it must engage with DPLG and SALGA as to the best way to do this. Minimum standards could be set and perhaps included in the DPLG list. National Treasury currently assesses municipal performance in key areas and can withhold equitable share if performance is poor. Discussions could be held with Treasury to explore the option of including environmental performance in the list of DORA 2004 (Chapter 2 Section 5(7) norms). Introduction of such a mandatory route should only happen once clarity on mandates has been established and extensive consultation held with stakeholders on how best to enable environmental reporting at the local level.
- ? **Provide a clear and effective reporting process and structure.** At some point in the future, DEAT may decide (in association with key stakeholders) to try to implement some mandatory local level indicators. **If** this route is ever followed, it will be very important to ensure that there are effective systems and processes in place to facilitate reporting by local authorities. If information

is to be collected effectively from local government, they must not be overburdened with a complicated, unclear or onerous reporting process to DEAT, especially if they are already providing similar information to other departments. Thus care must be taken to design and implement a process, in consultation with municipalities, SALGA and provinces, to make the reporting of information by local government to DEAT as easy and efficient as possible. To be most effective, this should consider how the reporting of the information required by DEAT can be associated with other reporting processes already being carried out by local government.

- Recommendation: DEAT: design a reporting process in consultation with municipalities, SALGA, provinces and other national departments.

? **Making reported information useful to local government.** Many municipalities have little or no environmental expertise in-house and thus, whilst they may be able to collect basic environmental information, they may not be able to interpret this and integrate it effectively into planning and decision-making processes. Environmental planning and wider governance may thus remain of low quality. DEAT and provincial environmental departments could improve this situation if they provided a ‘feedback’ service to municipalities – which assisted municipalities in the interpretation of environmental information to their particular situation.

- Recommendation: DEAT and/or provinces should consider establishing a data processing and interpretation capacity – the role of which would be to guide local authorities on what environmental information to collect, how it should be collected and when – and on receipt of that information, provide them with feedback on what it may mean for the municipal area and how it can best be used to guide decision-making processes.

? **Institutional Structures for Environmental Management.** Many municipalities do not have formal environmental management structures or staff. Consultees during this project requested guidance from DEAT on how best to set up institutional structures for environmental management.

- Recommendation: include general advice on institutional arrangements in general guidelines for environmental management at the local level.

7. References

DEAT 2002. Environmental Indicators for National State of Environment Reporting.

IDRC 1998. definition quoted in Islanda Institute 1999 (see PDG 2001)

Palmer Development Group 2001. National Key Performance Indicators for Local Government. Report produced for DPLG.

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