Report

Evidence and policy in South Africa's Department of Environmental Affairs

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November 2016

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

How to cite this document: Wills, A., M. Tshangela, N. Bohler-Muller, A. Datta, N. Funke, L. Godfrey, B. Matomela, G. Pienaary, N. Pophiwa, L. Shaxson, W. Strydom and Ke, Y. (2016) *Evidence and policy in South Africa's Department of Environmental Affairs*. Pretoria: Department of Environmental Affairs and London: Overseas Development Institute.

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This report is an output from a project funded by UK Aid from the UK Department for International Development (DFID) to support South Africa's Department of Environmental Affairs (DEA) in its implementation of the environment sector Research, Development and Evidence Framework. The views presented in this report are those of the author(s) and do not necessarily represent the views of ODI, DFID or DEA, which can accept no responsibility for such views or information or for any reliance placed on them.

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About this report

This is the second in a series of documents that have been developed as part of the VakaYiko Consortium project, supporting the Department of Environmental Affairs (DEA) in South Africa as it embeds and enhances an evidence-informed approach to policy-making. It has been jointly produced by a team from DEA and from the Overseas Development Institute (ODI) in the UK, working with the Council for Scientific and Industrial Research (CSIR), the Human Sciences Research Council (HSRC), the Department for Planning, Monitoring and Evaluation (DPME) and the Department for Science and Technology (DST).

Other documents in the series include:

- a paper outlining an approach to help government departments diagnose their evidence-informed approach to policy
- a set of guidelines that underpin an evidence-informed approach to policy-making within a department or line ministry.

The VakaYiko consortium project runs over three years and involves five organisations working primarily in three countries: Ghana, Zimbabwe and South Africa. This project is funded by the Department for International Development (DFID) under the Building Capacity for the Use of Research Evidence (BCURE) programme. For more information about the VakaYiko Consortium, contact us at vakayiko@inasp.info.

Acknowledgements

The primary authors of this report are Alf Wills, Mapula Tshangela, Narnia Bohler-Muller, Ajoy Datta, Nikki Funke, Linda Godfrey, Bongani Matomela, Gary Pienaar, Nedson Pophiwa, Louise Shaxson, Wilma Strydom and Ke Yu.

This report was developed as part of the VakaYiko consortium project supporting the Department of Environmental Affairs (DEA) in South Africa. Teams from the Human Sciences Research Council (HSRC) and the Council for Scientific and Industrial Research (CSIR) (in South Africa) and the Overseas Development Institute (ODI) (in the UK), the Department for Planning, Monitoring and Evaluation (DPME) and the Department of Science and Technology (DST) have been working with DEA teams to help it understand what may need to be done to strengthen DEA's approach to evidence-informed policy-making. The effort has been highly collaborative and we are very grateful to all individuals who have consented to be interviewed, attended meetings, read and commented on draft reports and offered their insights, opinions and advice. We are also grateful to those people who offered their time and expertise during interviews for the five diagnosis studies. For reasons of confidentiality they are not listed.

A steering group participation consisting of officials from DEA, DPME, DST, University of Cape Town (UCT) and the University of Jonhannesburg (UJ) has guided us throughout. Particular thanks are owed to the following individuals: from DEA, Wadzi Mandivenyi and Kiruben Naicker (Biodiversity & Conservation), Kgauta Mokoena and Anben Pillay (Waste Management), Anna Mampye (Sustainability Reporting), Nhlanhla Sithole, Gertrude Matsebe and Bongani Maluka (Environmental Programming), Keleabetswe Tlouane and Samukelisiwe Mncube (Outcome 10) and Brian Mantlana (Climate Change & Air Quality); from DPME, Ian Goldman (Chair of the Steering Group) and Harsha Dayal; from DST, Shanna Nienaber and Henry Roman; from UCT, Alan Hirsch; and from UJ, Ruth Stewart.

DEA Provinces and Entities actors whose support is acknowledged are as follows: Ester Makau, Tlou Ramaru, Limpho Makotoko, Peter Lukey, Jacob Kutu, Thandeka Mandigora, Obed Baloyi, Mamosa Africa, Mpho Tshitangoni, Khashiwe Masinga, Sharon Mogomotsi, Bonginkosi Dlamini, Leanne Richards, Reitumetse Molotsane, Tsepang Makholela, Pravin Pillay, Edward Moeketsi, Timothy Fasheun, Carmel Mbizvo, John Donaldson, Kristal Maze, Mandy Driver, Tammy Smith, Anthea Stephens, Karen Shippey, Frances van der Merwe, Magdel Boshof, Geoff Cowan, Wilma Lutsch, Humbu Mafumo, Stanley Tshitwamulomoni, Basani Ndindani, Tharina Boshof, Nthabeleng Montsho, Godfrey Muneri, Zama Nkuna, Monana Dhliwayo and Thembinkosi Twalo.

The authors thank Ruth Stewart and Laurenz Langer (UJ) for their thoughtful review and comments, and Hannah Caddick and Roo Griffiths for their excellent publication editorial and design support.

Acronyms and abbreviations

APP	annual performance plan
BCURE	Building Capacity for the Uptake of Research Evidence
CBO	citizen-based organisation
CSIR	Council for Scientific and Industrial Research
CSO	civil society organisation
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
Defra	Department of Environment, Food and Rural Affairs (UK)
DFID	Department for International Development (UK)
DPME	Department of Planning, Monitoring and Evaluation
DPSA	Department of Public Service and Administration
DST	Department of Science & Technology
FOSAD	Forum of South African Directors-General
HSRC	Human Sciences Research Council
LTMS	Long-Term Mitigation Scenarios
M&E	monitoring and evaluation
MinMEC	Ministers and Members of the Executive Council
MinTech	Ministerial Technical Advisory Body
NBA	National Biodiversity Assessment
NBSAP	National Biodiversity Strategy and Action Plan
NEMA	National Environmental Management Act
NEMBA	National Environmental Management (Biodiversity) Act
NGO	non-governmental organisation
NSSD	National Strategy for Sustainable Development
R&D	Research and Development
RD&E	Research, Development and Evidence
RSA	Republic of South Africa
SALGA	South African Local Government Association
SANBI	South African National Biodiversity Institute
SANPARKS	South African National Parks
SAWIS	South African Waste Information System
SAWS	South African Weather Service
UCT	University of Cape Town
UJ	University of Johannesburg
UK	United Kingdom
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change

Executive summary

Since 2008, South Africa's Department of Environmental Affairs (DEA) has made a concerted effort to enhance its systems for using evidence to inform how it diagnoses, develops, implements and reports on policy. In 2012, DEA published a framework document outlining its approach to evidence: the Research, Development and Evidence (RD&E) Framework. This had five aims:

- to improve the interface between science and policy
- to improve the sector's ability to identify priority evidence needs by working with others
- to ensure all sector policies are based on a robust and broad understanding of evidence
- to align its investment in research and development (R&D) with sector priorities in order to maximise the value of that investment
- to ensure the sector has effective skills and processes around evidence.

These aims remain relevant to DEA's work, but the department recognises that more could be done to enhance its approach to evidence-informed policy-making. Specifically, helping senior managers to answer two questions:

- Is DEA using evidence as effectively as possible to deliver across the full range of policies and decisions it faces?
- Is DEA's planning and expenditure on evidence as cost-effective as it could be?

This report synthesises the organisational issues that influence how DEA works with evidence to develop, implement, monitor and report on environmental policies. It is based on the findings of five studies that were conducted as part of a programme of support to DEA between 2014 and 2016.[1] Many examples of good practice were unearthed in the studies – examples that deserve to be shared more widely. The report also identifies areas that were observed to be limiting DEA's ability to make better use of its evidence. It provides DEA with an opportunity to consider what areas it could further support to enhance its systematic and phased approach to evidence-informed policy-making and implementation.

'Evidence' in the policy context

DEA recognises four types of evidence that are needed for policy- and decision-making purposes:

- **Statistical and administrative data** paints a picture of where we are now. This might include trend data on greenhouse gas emissions or the performance of landfill sites, or information on regional water quality or the distribution of endangered species. DEA's example use of this type of evidence includes municipal-level data on chemicals and waste management, via the air quality reporting system, and via the Environment and Culture Expanded Public Works Programme process.
- **Analytical (research) evidence** can explain causal relationships, enrich our understanding of complex issues or challenge received wisdom. This primarily includes evidence from engineering, natural science and social science research. DEA's example use of this type of evidence includes the South African National Biodiversity Institute's (SANBI's) work to develop biodiversity offsets for wetlands, the earth systems science approach to policy development in the Oceans and Coast theme and the trends analysis done for the South Africa Environment Outlook (State of Environment).
- **Evidence from citizens, stakeholders and players** informs policy-makers of what different groups of people value and what they consider legitimate. This type of evidence may be collected using research methods, but participatory processes of engagement are equally important. DEA's example use of this type of evidence includes consultation regarding standards for waste collection in municipalities for poor households; and the National Biodiversity Strategy and Action Plan and National Climate Change Response White Paper, which combined citizen, stakeholder and scientific evidence.
- **Evidence from evaluations** tells us what has worked in the past, for whom, how and why. This includes evidence from detailed evaluations that can be conducted of a specific policy or programme. DEA's use of this type of evidence includes the report on environmental governance in the mining sector, and the monitoring report for the National Strategy for Sustainable Development.

1 The studies were conducted as part of the VakaYiko project, funded by the UK Department for International Development (DFID) under the Building Capacity for the Uptake of Research Evidence (BCURE) programme.

All four types of evidence are needed in different combinations at different times. Together, these constitute the departmental evidence base. They can be managed to ensure that, even with limited budgets, DEA's policy priorities are as evidence-informed as they can be.

DEA's approach to evidence-informed policy-making

There are five areas where specific efforts could contextualise DEA's existing work on evidence.

1. A strategic approach to managing the evidence base

There is a strong tradition of using evidence to set the agenda for the 'big' policy challenges facing the environmental sector. The RD&E Framework (approved by the Ministers and Members of the Executive Council ('Environment MinMEC') in 2012) and the National Biodiversity Research and Evidence Strategy (approved by the minister in 2015) support DEA's principle of linking evidence needs to policy priorities. However, short-term policy issues tend to drive the day-to-day search for evidence. This limits the extent to which officials can plan to improve the likelihood that evidence is available when it is required. A more strategic approach to managing the evidence base could help DEA balance long- and short-term demands for evidence more effectively. It would also help send clear signals to external organisations that could support DEA's search for evidence.

2. A strategic approach to resourcing and planning the evidence base

There is a culture of planning and financing evidence use throughout DEA, as expressed in departmental annual performance plans, strategic plans and procurement plans. Such high-level prioritisation is important for DEA as evidence is needed for policy diagnosis, development, implementation and monitoring and reporting. The pressure to report on a quarterly and annual basis, however, risks skewing how evidence is sourced and used. While there is planning and resourcing for evidence in DEA, there is little detailed budgetary analysis of expenditure on the different types of evidence. This may make it hard for managers to know whether they are prioritising and spending their budgets for obtaining and using evidence cost-effectively. It may be helpful to develop a clear prioritisation framework against which to assess budget bids for evidence-related work.

3. A sectoral approach to the evidence base

DEA benefits from evidence and external strategic relationships with other departments, universities, research, industry, non-governmental organisations (NGOs) and international partners. The environment function cuts across sectors and has to achieve many of the goals through other departments and stakeholders. As environmental policy is a concurrent function,[2] the role of provincial and local governments, and their needs for evidence, should be taken into account from the beginning. It is important that any initiative to improve the use of evidence for environmental policy-making is not seen just as a DEA initiative.

4. An inclusive and participatory approach to evidence

A wide range of stakeholders have an interest in environmental policy-making. Their evidence is an important part of DEA's overall evidence base. Disagreement among stakeholders needs to be recognised as part and parcel of the policy-making process. Allocating sufficient time, resource and capacity to ensuring all voices are heard will help deliver policies that are both well informed by evidence and broadly trusted. There is participation within the sector's various policy processes, but the sector's complexity means different approaches to participation will be needed for different issues.

5. Sharing good practice

Evidence is highly valued within DEA, and there is a core group of people eager to help DEA take a strategic approach to its evidence base. Many examples of good practice have been identified. Senior managers have devolved responsibility for an evidence-informed approach to policy theme levels (branches or programmes). This encourages local experimentation and helps develop innovations that are well suited to each theme's individual context. Sharing good practice across themes will help build a stronger whole-department and sector-wide approach to evidence-informed policy-making.

2 Under the South African constitution, policies and regulations can be made *exclusively* by central government departments, or *concurrently* by central and provincial governments.

1 Introduction and background

What does it take for a government department to apply an evidence-informed approach to policy-making? Since 1997, the phrase 'evidence-informed policy' has gained traction worldwide. While it is not the only input to policy-making, there is general agreement that 'more evidence' that is 'well scoped, gathered and interpreted' and can subsequently be 'used to inform policy' is beneficial to delivering positive change – though there is also a great deal of debate about what each of these phrases really means.

Government departments formulate and implement policy and report on progress for many different issues. They do this within a complex network of organisations, including among spheres of government, citizen organisations, industry groups and academia. Departments such as South Africa's DEA face questions such as whether to allow building on wetlands that may be important for biodiversity, how to stimulate sustainable economic growth within natural resource-dependent communities and how to reduce waste going to landfill. There is a good deal of work being done to ensure these issues and many more are well informed by evidence. As a cross-cutting function, DEA deals with many different issues simultaneously, many of which may overlap with each other. Some may influence international issues; others may be focused on national concerns. Some may be led by DEA; for others, DEA may need to influence other departments that control the main spending avenues. There will be many other considerations in policy- and decision-making. In all cases, evidence will be needed to inform the decisions DEA must take, but the timeframes and the types of evidence needed will vary considerably. This gives rise to three linked questions that are at the core of this report:

- How can DEA, as a whole, be sure it is making the most effective use of all the evidence that is available?
- How can it be sure it is making most effective use of the resources it can spend on obtaining and using evidence?
- How can it be sure it is using its resources, and its evidence, to deliver its policy priorities as effectively as possible?

There are two main audiences for this report. The first is people inside DEA and government in general. These might be senior managers with responsibility for policy development and delivery; planning, finance and budgeting; liaison with other departments; or monitoring and reporting on achievements. They might also be stakeholders with cross-cutting remits to support government (e.g. in the provision of research funding, in monitoring progress and reporting, in supporting the provision of specific types of evidence, e.g. research, industry, citizens, evaluation or statistical data). The second audience is people outside government. This includes external organisations that provide evidence, such as universities and research institutions, and want to understand more about some of the specific pressures government departments face in sourcing and using evidence. It also includes people who support improvement of public sector performance, such as civil society and private sector actors, as well as consultants and donors.

The report is based on work that began in mid-2014, conducted by a team of researchers from the UK and South Africa and DEA policy-makers in collaboration with the Department for Planning, Monitoring and Evaluation (DPME) and the Department of Science & Technology (DST). Over a two-year period, this work aimed to help DEA understand and strengthen its use of evidence in its problem diagnosis, policy development, implementation, reporting, monitoring and evaluation. The project reviewed existing good practice that already takes place within DEA and observed some of the broader challenges the department faces as it seeks to build on what it already does.[3] The team consulted a wide range of documents and interviewed many people both within and outside DEA.[4] The documents are listed in the references but are not referred to individually in the text.

3 A linked paper outlines how the team went about the analysis, setting out a series of questions that were answered in five separate studies. See Shaxson, L., Datta, A., Tshangela, M. and Matomela, B. (2016) Understanding the organisational context for evidence-informed policy-making. Pretoria: Department of Environmental Affairs; and London: Overseas Development Institute.

4 The project team reviewed 148 documents and interviewed 55 people, and received 26 survey responses both internal and external to DEA.

2 Evidence-informed policy-making in South Africa

2.1 The wider context

There is an increasing understanding of what evidence-informed policy-making means in South Africa, which reflects both international debates about evidence and South Africa's unique history and current challenges.[5] Several overlapping formal and informal networks of government officials, academics, think tanks, private sector and civil society organisations (CSOs) have set out to improve evidence use.

This has helped create a very fertile ground for further work on evidence within government. DPME and DST are at the forefront of work to improve the use of all types of evidence throughout the South African government at national, provincial and local levels. DST oversees the government's approach to research and innovation via universities, research councils and various partnerships between research, industry and government. DPME, which sits in the Office of the President, oversees the planning, collection and reporting of different forms of evidence on government performance. DEA work described in this document has close links to both DST and DPME. DPSA works to improve the effectiveness and efficiency of public administration. DEA's work described in this report has close links to the work of all three departments.

2.2 The Department for Environmental Affairs

DEA's mandate is set out in legislation and policies including the National Environmental Management Act (NEMA) (1998) and the National Development Plan (2012). NEMA and subsidiary legislation on specific policy themes guides its day-to-day working. These themes include sustainable development, biodiversity and heritage resources, oceans and coasts, climate change and air quality management and waste and chemicals management. DEA has a broad remit that encompasses not just environmental management and conservation but also efforts to promote economic growth and employment, in response to South Africa's pressing economic and social challenges. It has made significant contributions to both national and international debates regarding sustainable development, biodiversity, conservation, climate change, oceans management, air quality, chemicals and waste management.

Since 1994 and the end of the apartheid era, South Africa's extraordinarily rich and varied natural environment has been an important focus for government policies. Environmental management is a concurrent policy function in South Africa: policies and regulations around environmental management are made, implemented and monitored jointly between the national department (DEA) and provincial and local governments. Thus, biodiversity policy on (for example) hunting of threatened or protected species may be made at national level, but the process of granting and monitoring hunting licences may be done at provincial level.

As well as collaborating with the different layers of government, DEA benefits from close relationships with its entities, such as South African National Parks (SANPARKS), the South African Weather Service (SAWS), the iSimangaliso Wetlands Authority and the South African National Biodiversity Institute (SANBI). These are government-funded research institutes whose specific mandate is to inform policy with evidence. DEA also maintains strategic relationships with research councils such as the Council for Scientific and Industrial Research (CSIR) via a series of Memoranda of Understanding that fund the provision of evidence in response to specific requests. DEA also has relationships with national and international

5 Readers interested in the emerging literature on evidence-informed policy-making in South Africa are referred to Funke et al. (2009), Godfrey et al. (2010), Paine-Cronin (2011), du Toit (2012), Funke and Nienaber (2012), Strydom et al. (2012), Marais and Matabesi (2013), Phillips et al. (2014), Stewart (2014), Swilling (2014), Goldman et al. (2015) and Ranchod (forthcoming).

academic institutions, UN-funded organisations and others that contribute to DEA's overall evidence base.

In 2008, the Department for Environmental Affairs and Tourism (as it then was), DST and CSIR co-hosted a workshop to explore how to improve the science–policy interface (Funke et al., 2009). Drawing from the experience of the Department of Environment, Food and Rural Affairs (Defra) in the UK, which had spent the previous four years trying to improve its own approach to evidence use, a small group of DEA officials set out to develop a framework for research, development and evidence across the environment sector. The intention was to set out the sector's common approach to evidence and to encourage specific activities to improve relationships between evidence and policy.

The Environment MinMEC – the executive ministerial body – approved the resulting Environment Sector Research, Development & Evidence (RD&E) Framework in 2012. It:

> *'Addressed the need for a common framework for the collection of evidence that can be used in support of environment sector policy decisions and for the achievement of sector priorities… it seeks to develop a more rigorous approach that gathers, critically appraises and uses high quality research evidence to inform policymaking and professional practice.'* (DEA, 2012: 1)

It sets out five core aims:

- to ensure a science–policy interface for the Environment Sector Plan (the 'Sustained Agenda') and Outcome 10 (the 'Change Agenda': see Box 1)
- to improve the sector's ability to identify priority evidence needs by working with others (national, provincial, local, private, CSOs, NGOs, research institutions and academia)
- to ensure all sector policies are based on a robust and broad understanding of the relevant evidence
- to align the sector's research and development (R&D) investment with sector priorities and maximise the value of that investment
- to ensure the sector has skills and effective processes for knowledge management, assembling and communicating evidence and sector priorities

The RD&E Framework recognises four different but overlapping types of evidence, each of which has a particular purpose and all of which are essential to inform its policy diagnosis, development, implementation and reporting processes. These are:[6]

- **Statistical and administrative data**, whose purpose is to describe the situation. This includes demographic data, data on performance of key indicators and administrative data that form the basis of management decisions in government, such as information on regional water quality or the distribution of endangered species.
- **Analytical (research) evidence**, whose purpose is to explain causal relationships, enrich our understanding of complex issues or challenge received wisdom. This primarily includes evidence from research.
- **Evidence from citizens and stakeholders**, whose purpose is to inform policy-makers of what people value and what they consider legitimate. This type of evidence may be collected using research methods, but participatory processes of engagement are equally important.
- **Evidence from evaluations**, whose purpose is to tell us what has worked in the past, for whom, how and why. This includes evidence from detailed evaluations that can be conducted of a specific policy or programme.

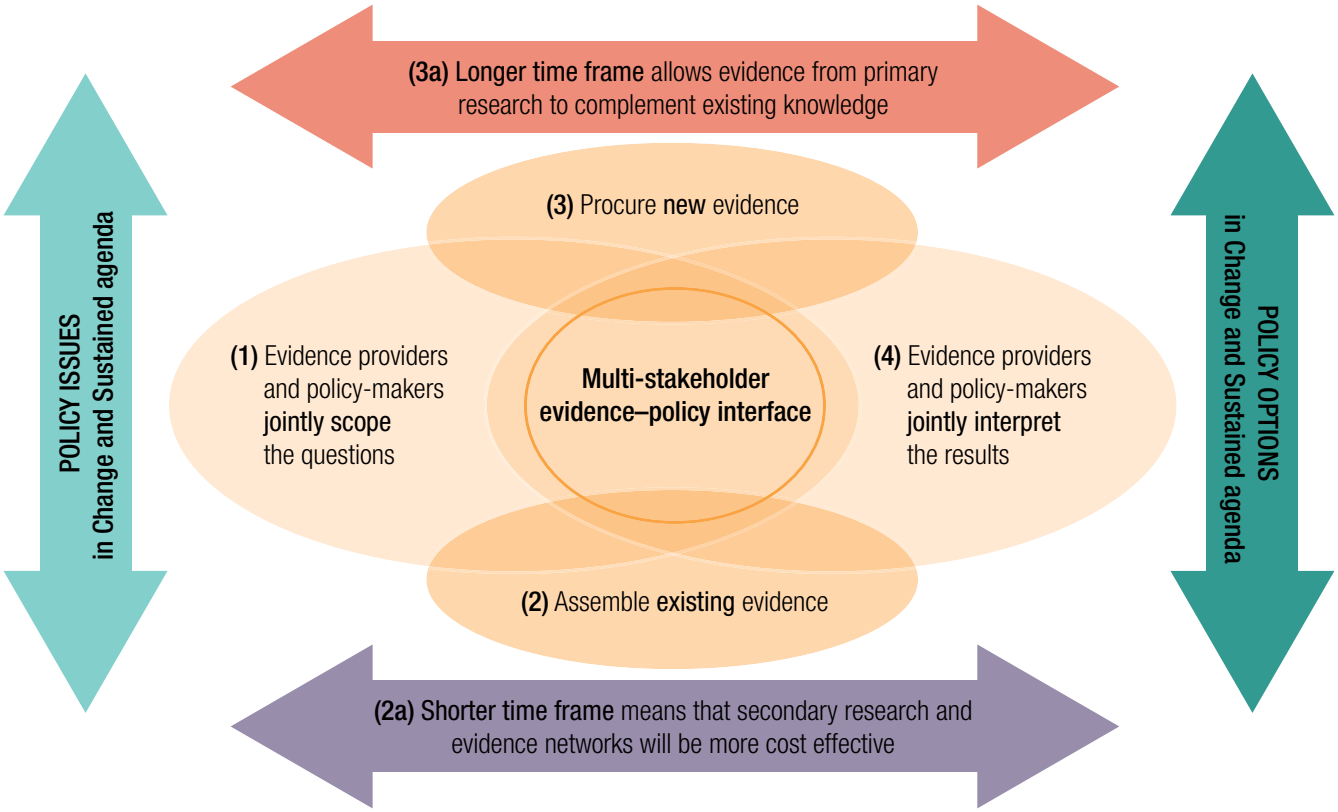
The framework describes DEA's overall approach to evidence, the environment sector priorities that need to be addressed, the collaborations, partnerships and institutional arrangements that will enable this to happen and the human capital and finance requirements. It sets out an implementation plan for 2012-2014, with detailed analysis of the specific issues to be addressed. It also describes in some detail four processes that should be in place for evidence to inform policy decisions in an effective way. These are:

- jointly **scoping** the questions that need to be answered, whether these are big agenda-setting issues or smaller, more focused, questions
- **assembling** existing evidence to ensure decisions are informed by a review of what is already known
- **procuring** new evidence where it is necessary – either using DEA's own budget or by working with other organisations such as research councils and think tanks
- jointly **interpreting** the evidence to inform decisions, ensuring multiple viewpoints are taken into account

Figure 1 shows how DEA conceptualised these functions.

6 Legal expertise may be needed to help develop or amend regulations, and to formulate legislation. We do not see this as a separate form of evidence, but as knowledge about how to use the evidence that already exists and define what other evidence may be required.

Figure 1. Four processes necessary for evidence to inform policy-making



Source: DEA, 2012a: 16. See Box 1 for descriptions of the Change and Sustained agendas.

3 Strengthening DEA's evidence-informed approach

Implementing a department-wide framework is not a simple matter. Government departments are complex organisations in which teams of people deal with multiple overlapping priorities, under pressure to deliver real change, keep within their budgets, manage relationships with each other and with key stakeholders and report on their progress. Different teams will have developed their own priorities, relationships with stakeholders and ways of working. All of these will affect how individuals and teams source, use and interpret evidence to inform their policy development and reporting processes.

DEA worked to the RD&E Framework from 2012 onwards, but by 2014 it was apparent that more effort was needed to ensure its approach was being implemented consistently across the department. While the intention was to devolve responsibility for the approach to individual policy themes, progress towards concrete outputs from the RD&E Framework (such as theme-level RD&E strategies) had been slow. Something different needed to happen to really embed and scale evidence-informed policy-making and implementation in DEA.

A small team of people worked with DEA staff in 2014-2015 to identify what influenced DEA's evidence-informed approach, to help it answer the three questions set out at the beginning of this report. This was done by analysing the set of influences that shape how DEA staff implement the four processes of scoping, assembling, procuring and interpreting evidence for policy. These are:

- the external influences on DEA, including the way evidence is conceived of and used within the environmental sector as a whole and the external debates regarding evidence
- the influence of internal human relationships that affect how DEA is structured and how people work with each other to source and use evidence
- the influence of DEA's internal business systems and processes of planning, reporting and budgeting.

These are described in detail in the first paper in this series, *Understanding the organisational context for evidence-informed policy-making* (Shaxson, et al. 2016).

DEA staff had already identified several issues they thought were key to improving the way evidence was sourced, assembled and used. These included how to help DEA improve citizen participation while ensuring the policy development process was evidence-based, and how to use evidence to embed the goal of sustainable development across government. Five distinct diagnosis studies were conducted that, together, helped uncover the various external and internal influences on DEA's use of evidence.

The studies drew from documentary analysis and interviews, both inside and outside DEA. While DEA's five policy themes were studied (climate change and air quality; oceans and coast; biodiversity; waste; and sustainable development), not all were covered to the same extent. Three of them were covered in greater depth for the specific studies on participation (waste), on the external environment (biodiversity and conservation) and on how to use evidence to influence other departments (sustainable development). This limited number of studies does not constitute a thorough diagnosis of all the issues facing DEA as it tries to scale and improve its evidence-informed approach. There were many areas that the small project team could not assess. However, subsequent discussions with DEA staff did suggest that the studies' observations and conclusions were broadly representative of the issues facing the department.

The rest of this report synthesises what these five studies observed. The individual study reports are internal to DEA and the detailed evidence collected by the team continues to inform discussions with DEA staff. Instead of reporting on each of the five studies, we return to the approach used to set them up. First, we review current practices for scoping, assembling and interpreting evidence for policy. Next, we discuss some of the wider contextual factors that shape an evidence-informed approach. Finally, we offer some summary observations.

The aim of this report is to share understanding of good practices and the sorts of issues DEA is grappling with as it embarks on a structured process to enhance its evidence-informed approach.

4 DEA's experience of informing policy with evidence

This section reviews DEA's current and previous practices of using evidence to inform its policies. Each subsection describes the practices DEA uses for the four processes described in Figure 1 in terms of the RD&E framework. To make analysis easier, these are limited to three: jointly scoping the question; assembling existing and new evidence; and jointly interpreting evidence to inform decisions.

4.1 Jointly scoping the question

This section covers DEA's activities to identify what the key policy questions are, whether those are 'big' questions about the state of the South African environment or 'smaller' (but no less important) questions about specific regulations. The studies showed a close relationship between *scoping the question* and *assembling existing evidence*, as reviews of what is already known help improve how the issues are framed and how the specific questions are asked.

4.1.1 Setting the agenda for the environment sector

DEA is particularly strong in using evidence to scope the big policy questions for the environment sector. Within the department, this is known as 'setting the agenda' and includes, for example, the first National Strategy for Sustainable Development (NSSD), published in 2011. The process of scoping NSSD began with the National Framework for Sustainable Development that ran from 2003 to 2008 and involved analysis of long-term economic, social and environmental trends. Similarly, the State of the Environment Outlook reports (1999, 2006), whose purpose is to scope the priorities for environmental management and implementation, were compiled on the basis of interim reports setting out the evidence for different environmental issues. State of the Environment (Outlook) reporting is now well established in South Africa at national and provincial levels and in some cities.

There is widespread use of high-quality evidence to develop official policies that are promulgated in Parliament, such as the White Paper on National Environmental Management of the Ocean and the White Paper on National Climate Change Response (2011). These involved substantial efforts to gather technical evidence, use public participation and consultation processes and engage at both national and international levels. A specific good practice example was the appointment of the University of Cape Town (UCT) (2006) to drive the Long-Term Mitigation Scenarios (LTMS) development process – a national process of building scenarios of possible greenhouse gas emission futures. This ensured the best available research and information would inform South Africa's position on future commitments under international treaties and the country's climate change policy.

Another good practice example is the development of the National Biodiversity Strategy and Action Plan (NBSAP). This involved strategic assessments of the key thematic areas, several task team workshops, two national consultative workshops, workshops in all nine provinces, workshops by NGOs and citizen-based organisations (CBOs) and two workshops where the South African Local Government Authority (SALGA) included municipalities from all nine provinces. A wide variety of evidence was used to help set the agenda for NBSAP.

Many interviewees noted that it was important to take a proactive approach to setting the agenda. This means allowing sufficient time to thoroughly consult a full range of stakeholders and communicate with them about the emerging agenda. Where this is done early, it helps improve the quality of the evidence used to address policy problems. Taking this sort of forward-looking approach to the evidence base can be particularly important where there is no central repository of research. At least one branch – Biodiversity and Conservation – has a clearly outlined research and evidence strategy and a commitment to cutting-edge research for policy implementation in specialised fields. Other branches have not yet fully developed similar approaches or documented strategies or plans, though several are in progress.

4.1.2 Scoping specific policy questions

Many of these agenda-setting exercises give rise to specific policy questions that need answering with research or

other forms of evidence. These questions are defined and collated in different ways. Some are processes that are wholly led within DEA that identify questions of more immediate relevance. Others are large formal exercises involving other organisations, which identify questions that may be relevant to DEA far into the future. An example of a large formal exercise is the Waste Research, Development and Innovation Roadmap, coordinated by DST. This sets out six clusters where long-term research is needed and issues calls for proposals to address specific areas within each cluster.[7] A different example comes from the Oceans and Coast theme. Promulgation of the Ocean Management White Paper gave rise to questions that fed directly into policies around (for example) estuarine management, the development of guidelines on coastal effluent discharge and surveys of representative priority habitats.

The way individual policy questions are scoped depends on the relationships between policy teams and the different organisations that are able to provide the evidence. The closer the relationship, the more likely it is that both sides will recognise which questions can directly inform policy discussions. Government entities such as SANBI are mandated to provide evidence into the policy environment through structured engagement processes. As part of this mandate, SANBI staff are involved in key decision forums, such as working groups and the Ministerial Technical Advisory Body (MinTech), which help identify the main policy questions that need answering and the types of evidence required. For most external organisations, however, the engagement processes are less formal and less structured. Interviews noted that broad and inclusive participation was vital to ensure the policy questions were well specified. Where this does not happen, regulations may be drafted that fail to account for the point of view of one or more key stakeholders. Their objections may send the policy back to the drawing board – as has happened with regulations for threatened or protected species legislation over the years.

4.2 Assembling existing and new evidence

DEA uses many different vehicles to assemble the evidence it needs: from stakeholder and civil society engagement processes to formal assessments and shorter-term, responsive, research. As noted above, assembling evidence helps ensure all stakeholders are aware of what is already known about an issue, and that the questions subsequently asked are a priority. It also helps ensure the evidence on which decisions are based is of the highest possible quality. It is helpful to distinguish between longer-term and shorter-term processes here.

4.2.1 In the longer term

The process of developing the White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity is well documented in the paper itself. It shows how DEA acknowledged the value played by non-government players in policy development. Throughout the process, opportunities for civil society input were created, ensuring evidence from citizens was part and parcel of the assembly process. In a similar vein, a participatory, multi-stakeholder, consultative and iterative process led to the drafting of the National Climate Change Response Green Paper. Further research was subsequently commissioned on issues of climate finance, human resource and technology, adaptation, mitigation and governance, which fed into the policy development process. And when South Africa hosted the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), the negotiation process aimed to ensure all spheres of government, ordinary South Africans and all other stakeholders were offered the opportunity to participate in developing South Africa's negotiating position.

Long-term, formal assessments of the state of different issues (such as the environment, or biodiversity or oceans) are a useful way to assemble existing evidence. The National Biodiversity Assessment (NBA) is a requirement of the National Environmental Management (Biodiversity) Act (NEMBA) to support the development and implementation of biodiversity policy and legislation in South Africa. It also provides evidence on the state of, and trends in, South Africa's biodiversity and ecosystems. It informs the regular processes of updating other documents, such as the NBSAP, the National Protected Areas Expansion Strategy and the listing of threatened species. And, as noted earlier, State of the Environment (Outlook) Reporting is now a regular process at national and provincial levels and in some cities.

4.2.2 In the shorter term

Formal assessments are not, however, the only way of assembling existing evidence: this needs to be done on a shorter-term, more responsive, basis as well. The extent to which fast turnaround reviews such as rapid evidence assessments are used in DEA is unclear, though one interviewee noted the need for more of such approaches. They can help prevent situations where last-minute and unreliable information is sourced because no other evidence is available.

Knowledge management is important but of variable quality in DEA. Information systems such as the South African Waste Information System (SAWIS) and SANBI's Biodiversity Geographic Information System allow for easy access to this assembled evidence. However, where they rely on external organisations to input the evidence, the quality

7 See www.wasteroadmap.co.za/download/waste_rdi_roadmap_summary.pdf.

can be compromised. Interviewees noted that more could be done to improve understanding of why SAWIS' evidence is important and to build trust within the waste sector to improve the quality of the evidence entered into it.

4.2.4 Ensuring evidence quality

Finally, the processes of assembling evidence need to ensure that its quality is as high as possible. This is easier in the longer-term, formal, assessment processes such as those already described. In these cases, there is good involvement with people who have a high degree of training (such as researchers and policy-makers) and with civil society and stakeholders. It is more difficult for shorter-term, responsive requests. In these cases, more emphasis needs to be placed on policy-makers' ability to assess the quality of the evidence themselves, and on the strength of their relationships with external organisations that can provide evidence and advice. DEA has a good complement of staff with scientific training, but this is not shared equally across all themes. In some instances, officials may need to assume the evidence external organisations provide is of sufficiently high quality. Broad-based training in how to assess evidence quality could help strengthen this assembling function. As one interviewee noted, this could be complemented by a framework or specific guidance that task teams can use to determine the quality and acceptability of evidence. This would help avoid compromises regarding evidence, or the loss of good evidence, when team members have conflicting agendas.

4.3 Jointly interpreting the evidence to inform decision-making

The process of interpretation is a vital one to ensure policies are well informed by evidence. It allows everyone to explore, in detail, what the evidence really means in the current policy context.

DEA faces three conflicting pressures as it develops, implements and reports on policy: to conserve the natural environment, to address national priorities such as economic growth, job creation and poverty alleviation, and to promote social justice. These may sometimes appear to conflict with each other, making the choice of what to do a difficult one. Both sides need to be able to use evidence to navigate complex discussions, consider trade-offs and ensure the final decision is well supported. Different policy themes respond to these goals in different ways. Interviews found some themes may emphasise environmental issues and rely on evidence from the natural sciences. These may find it challenging to interpret how the evidence informs DEA's social and economic goals. In other themes, this may be less of an issue. For example, the work on Operation Phakisa under the Oceans and Coast theme emphasises the goals of improving the ocean's economy, marine protection and marine governance[8] all at the same time.

Relationships between external evidence providers and policy-makers are not always strong when it comes to interpreting evidence. Interviewees noted that researchers were sometimes not invited to discuss the implications of their evidence. Some observed that their reports seemed to disappear into the 'black box' of policy-making and they were not given opportunities to discuss the evidence to ensure its full implications were understood. This was seen even when the research was done by a government entity with a specific mandate to provide evidence to use in the policy process. Interviewees from both DEA and external organisations recognised the importance of creating an enabling environment for knowledge-brokering activities to ensure the evidence is jointly interpreted, but did not specify exactly what these might look like.

The process of interpreting evidence to inform decision-making does not just happen between DEA and its evidence providers. Approval processes for new or amended policies involve discussions of the evidence in forums that bring DEA together with provinces and other departments. These include working groups and MinTech – the most senior forum in which technical aspects of the evidence are debated.[9] In some cases, the same organisations are involved: SANBI, for example, provides evidence to DEA policy-makers, but as a government entity its branch heads are involved in MinTech working groups. SANBI heads sit with MinTech and its chief executive officer with MinMEC. This affords SANBI a privileged position in these high-level interpretation processes, and ensures a continuing focus on issues of biodiversity and the environment in discussions. The same is not necessarily true of other themes, where the organisations that provide the evidence are not government entities and do not participate at the same level.

Good practices were also identified in how DEA themes engage with external stakeholders regarding evidence. One interviewee described the process of producing the White Paper on Integrated Pollution and Waste Management for South Africa (2000) as having been 'amazingly thorough', with a high degree of public participation and significant reporting back to stakeholders. The team developing Standards for Waste Collection in Municipalities for Poor Households held a series of workshops to provide

8 Operation Phakisa draws on the Malaysian Big Fast Results methodology. It is applied to particular areas of policy emphasis and brings together public and private sectors, academia and civil society to collaborate in detailed problem analysis, priority-setting, intervention planning and delivery www.environment.gov.za/projectsprogrammes/operationphakisa/oceanseconomy#criticalareas

9 After MinTech, policies proceed to MinMEC and to the Forum of South African Directors-General (FOSAD). The move from MinTech to MinMEC or FOSAD represents the move between technical and strategic discussions. Within MinMEC there is less emphasis on technical aspects of policy development and reporting processes than there is in MinTech. MinMEC's focus is more on coordination between national and provincial levels, and between departments.

feedback, in areas where affected stakeholders had easiest access, to ensure their involvement and engagement. Likewise, the study on sustainable development showed DEA had done well to coordinate its cross-cutting remit, using participatory processes to interpret the evidence to good effect. However, it remains a challenge to translate the principles of sustainable development into policy outcomes at scale.

4.4 Summary reflections

The studies found many areas of good practice across DEA that deserve to be shared more widely. These are particularly evident where time and resources have been allocated to lengthy consultation processes that involve a broad range of stakeholders, including civil society, business, advocacy groups and different branches and levels of government. There was widespread recognition that an evidence-informed approach rests on an inclusive and participatory approach to policy-making. For South Africa, with its history of division, it is important to continue strengthening civic participation. However, DEA also recognises that policy teams are challenged to maintain these good practices where time and resources are limited.

4.4.1 Technical quality of the evidence base

There are consistent efforts to ensure the technical quality of the evidence. DEA has good relationships with a variety of organisations that provide high-quality scientific evidence, from government entities such as SANBI, SAWS, SANPARKS and iSimangaliso to universities and NGOs. Many staff have a background in environmental science. Where they have postgraduate degrees, their understanding of what makes evidence robust is likely to be good, though more could always be done to improve specific techniques. A current question for some themes in the department is whether they are too heavily reliant on the natural sciences and whether this runs the risk of policy-making becoming too technocratic. A stronger emphasis on social science evidence (including citizen evidence, as noted above) could enhance how they address the national goals of economic growth and increased employment via the natural environment. This may be particularly important for promoting the issue of sustainable development, where DEA could consider reframing sustainability issues through an economic and social perspective in order to gain more widespread support for its work in bringing about social, economic and environmental outcomes.

4.4.2 The importance of good relationships around evidence

Access to research and other forms of evidence is a prerequisite for an evidence-informed approach. This varies between DEA's different policy themes. One theme – Oceans and Coast – employs a significant number of in-house researchers. Others have to rely on external organisations. Public entities such as SANBI and SAWS are valuable originators of evidence, giving DEA free access to research outputs, data and other information. Two themes – Biodiversity and Conservation and Climate Change and Air Quality – rely heavily on SANBI and SAWS, respectively. As SANBI and SAWS are government entities, the evidence is effectively provided for free to DEA. Other research councils and universities also provide evidence. The Chemicals and Waste Management theme, for example, derives much of its evidence from CSIR. However, evidence such as that from CSIR and other research institutions needs to be resourced. All these organisations also help translate evidence into policy advice in the form of tools and guidelines, and are involved in the agenda-setting processes described above.

4.4.3 Communicating priority evidence needs to others

Interviewees also noted that developing a strategic approach to managing the evidence base would help align the research agendas of external organisations with policy's needs for evidence. This could play a significant role in making sure the relevant evidence is more likely to be available when needed, sufficient time is given to research that may help anticipate future policy priorities and resources are allocated to supplementing incomplete or out-dated datasets. As noted, several of DEA's thematic programmes are making concerted efforts to develop their own evidence strategies, which will help in this regard.

5 What influences DEA's approach to evidence?

The previous section showed four processes and the range of practices DEA uses to ensure evidence informs its policies. These practices are not fixed; they change as people learn new skills, forget old ones, invent new techniques and build different relationships. Many of these changes happen in response to pressures and incentives within the policy-making system. These may emerge from the external policy environment, or from within the department itself. DEA is attempting to design an evidence-informed approach that is sustainable over the long term. This means it is important to understand where the pressures come from and how they shape people's behaviour around evidence. Many of these pressures overlap, sometimes reinforcing and sometimes working against each other. We have separated them out into three main sets of influences: external, human resource and business influences.

5.1 External issues

Departments operate in complex and changing institutional and political environments, whose history offers clues as to what types of evidence are considered important and how they are used. There are two main factors: the complexity of the evidence within the sector and the wider pressures to use evidence more generally.

5.1.1 South Africa's complex environmental sector

DEA's remit is environmental policy-making, but it is also the promoter of sustainable development policy across South Africa. The departmental remit has evolved, from a primary focus on conservation of the natural environment to a three-pronged focus on the environment, economic growth and employment creation. The studies found that, while there may be academic agreement on how sustainable development is defined, in reality the way the concept of sustainable development is used in policy-making is ambiguous. There are three main arguments. The first is that of sustainable development as a radical, revolutionary transformation of economic relationships to bring them in line with natural limits and ecological virtues. People holding this view advocate a systems approach to assessing sustainability and stewardship of the natural environment, wanting to challenge long-held beliefs and ideologies. The second is that of the stated commitment to sustainable development just as a realignment of the prevailing growth model and development path. People holding this view see economic growth as the driver of progress, while the environment is seen as a resource for human development. The third is that the environment is an economic opportunity. People who hold this view do not focus on environmental limits and scarcity. Their emphasis is on new markets, new services and new forms of consumption.

These sorts of disagreements give rise to different understandings of how to use evidence to advance sustainable development policies. They can translate into policy inconsistencies. A case in point is the environmental goal of reducing electricity consumption, which does not necessarily sit well with the fiscal goal of raising public-sector income from the sale of energy.

A separate but related issue is that DEA does not have the spending power of some of the larger departments, such as housing, transport or education. While it is able to influence some environmental behaviours directly through regulation and some taxation or levies, a great deal of its impact will come through its ability to use evidence to influence policy processes that other departments develop and implement. These might include minimising the environmental impact of mining, urban development or industry, building greener transport systems or managing waste from the health sector. DEA is not responsible for how these policies are developed or implemented. It can only seek to encourage them to give equal priority to environmental sustainability considerations and contribute to reviewing and evaluating what they have achieved.

There are two main implications for DEA's own evidence base. First, DEA does not always have all the evidence it needs to help make policies for sustainable development in South Africa. Other departments will hold some of the evidence. Second, there will always be a degree of contestation regarding the interpretation of the evidence for how policies should be developed, implemented, monitored and evaluated. Together, these indicate DEA's need for participatory processes of policy development that are inclusive of *all* stakeholders: civil society, advocacy organisations, research institutions, business and industry and other government departments. In fact, the need for enhanced participation already resonates strongly within the department. The second implication

is that, to understand these differences of opinion and how they interact with each other, DEA needs better links to evidence from the social sciences to complement the evidence it already sources from the natural sciences.

5.1.2 Other pressures on DEA to improve its use of evidence

As with all departments in South Africa (and indeed in much of the world), DEA is trying to design and deliver its policies with a restricted budget. This provides an on-going pressure to collect and use evidence as efficiently as possible, for all types of policy issue. It is helpful to think of two particular challenges for the evidence base: policy 'shocks'[10] and ongoing pressures.

There have not been any overarching policy shocks to South African environmental policy-making in recent years.[11] However, individual policy areas may well face sudden 'hot potatoes'. One example is that of policy concerning the hunting of endangered species such as rhinos. This is a controversial topic that makes the Biodiversity and Conservation team's work to develop or amend legislation difficult and lengthy. As noted earlier, it is forcing a rethink about what sorts of evidence are needed and how to improve how it is sourced and interpreted.

There are several ongoing pressures to make better use of evidence. One example is the National Evaluation System. While this does not look specifically at hot potatoes, it is helping departments look in depth at how they have delivered major policies in their sectors. Individual departments and DPME jointly manage evaluations. They are reported to Cabinet, which monitors the resulting improvement plans on a six-monthly basis. The intention is that this will create a strong demand for all types of evidence. For example, the recent evaluation of environmental governance in mining (done jointly with DEA and the Department of Mineral Resources) highlighted the lack of quantitative data and the need to improve management of existing databases.

Another set of pressures on environmental policy-making in South Africa relates to climate change, biodiversity loss and low economic growth. These affect evidence use in different ways. For example, DEA is a major player in international negotiations on climate change. Interviewees noted that this created a strong 'pull' on the evidence base, as these debates are often very technical. What guarantees DEA a seat at the top table is the quality of the evidence it uses to support its arguments. However, this can be challenging because responsibility for environmental policy-making is not completely centred around DEA. A good deal of responsibility is devolved to provincial governments, which consequently determine what evidence they need on what issues. Different provinces have different requirements for evidence, which means there is some inconsistency in what evidence each province collects.

Within the national system of policy-making there are other pressures on how evidence is used. DEA and provincial governments are making serious attempts to improve the coherence of the national and provincial evidence bases for environmental policy-making. This is done within the frame of the Change and Sustained Agendas (see Box 1).

The studies for this project found that the both the Change and the Sustained Agendas tend to emphasise short-term needs for evidence to fulfil quarterly reporting requirements. Two weak feedback loops were also identified: the first between research and reporting and the second between policy development and reporting. The danger is that, if budgets are limited, continuing needs for evidence are given insufficient attention. Interviewees spoke of the need to rebalance the evidence base away from a heavy emphasis on monitoring and towards improved forecasting so that environmental policy-making retains its long-term focus, and anticipating the hot potato issues mentioned above. They also emphasised the need to maintain support for foundational knowledge and long-term datasets.

There is ongoing work to improve the technical specifications of the indicators for each sub-Outcome. This is an effective way to strengthen the feedback loop between research and reporting on the Change Agenda. For the Sustained Agenda, strengthening the link between policy development and reporting is more difficult. Annual performance plans (APPs) do not contain every single policy development activity – they focus on the key priorities and achievements needed to fulfil DEA's legislative agenda. Because the Auditor-General focuses on compliance, APPs may not always include policy processes where quarterly progress is uncertain or hard to specify.

The challenge for the environment sector as a whole is to ensure its evidence base is managed to meet as many of these different requirements as possible. DEA needs evidence to demonstrate quarterly progress as well as to describe what might happen in the long term. It has to ensure very detailed technical specifications of progress indicators that are not developed at the expense of an inclusive approach that takes citizen perceptions into account. The evidence base must help policy-makers anticipate hot potato issues that could arise at short notice. At the same time, it needs to maintain the long-term

10 A serious 'policy shock' would be an event that results in a complete rethink about how policy is made. For example, the 2001 epidemic of Foot & Mouth Disease in the UK caused a serious economic and social crisis in the agriculture, environment and tourism sectors, and the army was called in to manage the immediate response.

11 In contrast to the UK in the early 2000s, when Bovine Spongiform Encephalopathy ('mad cow disease') and Food & Mouth Disease devastated British agriculture and thus agricultural (and environmental) policy-making.

datasets that are the foundation of our understanding of environmental change and sustainable development.

In summary, DEA's evidence base needs to deliver against a very complex range of issues. But in all of the analysis above it might be easy to overlook the fact that 'a department' is in fact a collection of people with many different skills who work with each other in formal and informal ways. So how can we strengthen the incentives for everyone – working individually and in teams – to source and use evidence effectively? This is the topic of the next subsection.

5.2 Internal human resource issues

Policy-making departments are generally large and bureaucratic. The processes they use to develop policies and to implement and report on progress need to be formalised for accountability and transparency. As we have seen above, this can pull the evidence base for all policies in different ways. There are four main challenges for DEA's senior managers.[12] The first is to ensure the evidence base is managed so it meets as many needs as possible. The second is to build relationships that help people source and use efficiently and effectively. The third is to plan so the necessary skills are available to promote an evidence-informed approach. The fourth is to ensure resources are available to do all of this.

5.2.1 Strategy and the role of senior management

DEA's RD&E Framework is a radical attempt to structure how DEA officials think about evidence. As well as research, it emphasises that policy requires statistical and administrative data and evidence from citizens and stakeholders and from evaluations. It speaks of the need to improve the science–policy interface and to maximise the value of investment in evidence by ensuring evidence needs align closely with policy priorities. It sets out what those priorities were for the sector in 2012 and the many different players who need to be involved. It describes institutional structures that could be put in place to operationalise this strategic approach, and looks at the human capital and financial requirements. It is a thorough and strategic document with devolved responsibility for its implementation. However, since its publication in 2012, its recommendations have been implemented unevenly across DEA.

How the RD&E Framework was submitted and approved is interesting. Following the 2008 workshop, a small group of interested people worked informally to develop the approach and write the document that would finally be submitted. There were no formal structures for discussing this sort of departmental-level approach to evidence within DEA's decision-making hierarchy. The group therefore worked 'off the side of their desks' with *ad hoc* engagements, including the MinTech working groups and the DEA/DST Joint Working Committee. The team also ensured the RD&E Framework was included as a deliverable in the APP. It was initially inserted at branch level; when this was approved, it was automatically included in the departmental APP. Doing this alerted senior managers to the fact that it existed and that they would be required to read and approve it. At the same time, individual members of the group were attempting to apply lessons from the RD&E Framework to their own policy themes.

Box 1. The Change and Sustained Agendas

South Africa's National Development Plan and Medium-Term Strategic Framework set out 14 high-level Outcomes that guide policy-making across all government departments and all provinces. Each is divided into several sub-Outcomes, which set out the main policy priorities. This Outcomes Approach, also known as the Change Agenda, also shapes how progress is reported, which is done on a quarterly basis. Detailed progress indicators have been developed with clear technical specifications for what evidence should be collected and how it should be interpreted. Issues of quality and coherence around the evidence are discussed in quarterly meetings of technical working groups. These groups are an important point of contact between DEA and the provinces, helping improve the coherence of policy development and progress reporting. Their outputs are submitted to various high-level policy-making bodies for approval. Outcomes Reports are submitted to DPME (which oversees the Outcomes Approach) and ultimately to Cabinet. While a single department will lead on the reporting against one Outcome, responsibility for delivering each Outcome will be shared between several departments, to promote policy coherence. DEA leads on the reporting for Outcome 10, for example, but it does this in close collaboration with the Departments of Energy, Transport, Agriculture, Water Affairs and Mineral Resources.

As well as the Outcomes Approach, departments develop five-year strategic plans that give rise to annual performance plans (APPs). These set out their legislative mandates and describe the wider policy agendas that are not all captured by the Outcomes Approach. This is known as the Sustained Agenda and it, too, is reported on quarterly (though reports are also sent to the Auditor-General, who assesses whether departments have achieved what is set out in their plans).

12 Civil servants have different titles in different countries. By 'senior managers', we mean the top three or four layers in the hierarchy: the people who take strategic decisions.

They drafted theme-level evidence strategies and worked to improve relationships across the science–policy interface.

Senior managers and MinMEC approved the RD&E Framework as a statement of intent. The next step could have included setting up some form of governance – such as an evidence committee – to discuss and monitor how it would be implemented and how it would contribute to making the department as a whole more evidence-informed. Within DEA, however, this was not fully adopted. There may be several reasons for this. For a start, the debate about evidence within government circles was not as well developed in 2012 as it is now. The Outcomes Approach was still being fine-tuned, and the National Evaluation System was in its infancy. Relationships between scientific research and policy development were overall reasonably strong. As noted earlier, although climate change and other global issues have strengthened the use of evidence in some themes, there have been no catastrophic policy shocks that might have led to a stronger focus on evidence across the whole department. In addition, DEA officials suffer from meetings fatigue. As the first part of this report has shown, there are many examples of good practice around evidence in DEA. The RD&E Framework aimed to consolidate these and encourage yet more good practice. It still stands as a statement of intent for DEA even if it has not driven major changes.

5.2.2 Relationships around evidence

DEA officials rely on many different types of relationship to ensure they have the evidence they need. Internally, as noted previously, some branches have teams dedicated to providing evidence. Others have teams that manage relationships with external organisations that provide evidence, such as government entities, academia, think tanks, consultants, CSOs and advocacy groups.

A single overarching observation helps us understand relationships around evidence: wide and early participation by all DEA's different stakeholders is part and parcel of developing a departmental evidence base. Relationships with organisations that provide technical evidence are quite strong. If these are allowed to dominate policy development processes, the danger is that DEA's policies may become too technocratic. It is crucial to have evidence that is technically robust, but this is not the only consideration. How all stakeholders participate in developing and implementing policies is equally important, particularly where marginalised groups are affected. An inclusive approach builds trust between people and helps in working through disagreements about specific issues. The language and location of participatory processes matter a great deal, especially for civil society. Getting all of this right takes time, effort and resources. DEA has many examples of good practice in implementing participatory approaches, but these have developed organically and not yet been shared widely. There is no specific organisation-wide guidance on how to strengthen participatory processes as part of an evidence-informed approach.

5.2.3 Capabilities, cultures and incentives for using evidence

The diagnosis did not focus on individual capacities, but this section attempts to highlight key issues that emerged that may require future elaboration. Debates on evidence-informed policy-making sometimes refer to 'a culture of evidence' within an organisation, meaning how people value evidence and what for. The review of DEA shows it is not particularly helpful to think of a single culture of evidence use. There are many different ways evidence is valued and many different reasons for valuing it – thus there are many different cultures of evidence rather than one alone. DEA officials value evidence that is technically excellent and evidence that has emerged from participatory processes. The heavy emphasis on reporting means evidence is sometimes valued more for how it demonstrates compliance with a plan than for how it helps shape it. Evidence from the natural sciences appears to be valued more highly than evidence from the social sciences, though this is changing as more emphasis is placed on achieving South Africa's economic and social goals, as well as its goals for the natural environment. The review showed how these different cultures of evidence can reinforce or work against each other. For example, interviewees spoke of the danger of reporting reducing their appreciation of evidence to a situation where evidence is valued '*only insofar as it confirms the desired picture*'. In a department where natural sciences tend to dominate, this could result in a picture that focuses solely on the natural environment rather than social and economic issues. It could be balanced by strengthening inclusive and participatory practices. These would involve others in working out what that desired picture might look like and ensure evidence is valued for its ability to question and challenge current understandings.

Peoples' incentives to use evidence are partly shaped by these cultures of evidence, and partly by the formal performance management frameworks. Besides the normal individual performance agreements and study schemes, there are few specific incentives for recognising the use of evidence, for specialising in working on evidence and for retaining those skills. In general in DEA, there is a high level of technical understanding of the issues, with many staff members having degrees in the natural sciences, sometimes to Masters and PhD level. However, interviewees stressed the need for more attention to building specific skills in sourcing and managing evidence. While some themes have employed people who specialise in evidence, some policy-makers requested higher levels of training in specific areas. These included how to appraise the technical quality of complex research reports and how to understand the legal implications of their work.

Other incentives to use evidence come from the government-wide approach to monitoring and evaluation (M&E), which began in earnest in 2009. Since then, DEA has strengthened its focus on M&E. Dedicated units are being staffed at branch level to improve the quality of the evidence for monitoring the environment and for reporting purposes. This section has briefly looked at the human element of working with evidence in DEA: the different 'cultures of evidence' and people's individual incentives and capabilities to work with all forms of evidence. There is one more set of issues that affects an evidence-informed approach. This is the set of business processes that influence how everyone in the department works.

5.3 Internal business issues

DEA is in the business of government: it uses public money to deliver a range of environmental, social and economic goods and services for South Africa's citizens. Like any other organisation, it has standardised business processes, and these play a key role in shaping its approach to evidence.

We have already explored how strongly government-wide South African planning and reporting influence DEA's approach to evidence. The third mandatory process is budgeting. Although this is part of the national planning process, it is not well synchronised with policy planning. The annual planning process begins in August of each year, with the submission of the department's first APP to the Treasury and DPME by 31 August. Departments receive their final budget allocation letters from the Treasury in November, which allows them to produce the second draft APP. Following further consultation, the final APP is published and tabled in Parliament in March. DEA is therefore in a more or less constant process of planning and budgeting. This makes it difficult for senior managers to develop a strategic approach to planning for all the different types of evidence needed and ensuring sufficient resources will be available.

DST conducts an annual survey of R&D in South Africa, but this is primarily to monitor investments across government, academia, non-profit businesses and science councils. It does not ask departments to provide detailed information on their expenditure on other forms of evidence. In fact, no departments are required to report (even in aggregate) what they spend on evidence. A very rough calculation, based on the Estimates of National Expenditure published by the Treasury, shows DEA could have spent an average of 11% of its total budget on evidence-related activities over the past six years. Even within a margin of error, this could represent a significant percentage of its overall budget. The intention of the RD&E Framework is to align the investment in evidence with sector priorities and maximise the value of that investment.

There are two possible approaches to improving this alignment: linking budget allocations to different types of evidence; and developing a simple prioritisation framework to guide the assessment of future budget bids.

Linking budget allocations to different categories of evidence could help DEA actively manage its evidence base across the whole department. Evidence could be categorised by type (administrative and statistical data, research, evidence from citizens and evaluation evidence) or by purpose (statutory evidence, evidence to meet short-term priorities; evidence to meet long-term goals or foundational knowledge). A category-based approach could help senior managers spot gaps and overlaps in the evidence base. It could also help managers identify where DEA may be able to deliver greater value for money by strengthening its relationships with other evidence organisations.

However, implementing a category-driven approach would not be straightforward. Developing the categories and linking them to resource allocations would be an inexact process, as evidence work may well straddle traditional budget boundaries. Setting up, populating and managing a central repository, for example, would involve purchasing hardware and software (infrastructure budget), employing knowledge managers (human resource budget) and ensuring that discrete pieces of evidence are sourced and quality appraised (delegated evidence budget). Making budget allocations to different types of evidence would have to rely heavily on individual managers' judgement, with the risk that the final decisions are based on inconsistent evidence.

The alternative approach would be to worry less about how evidence is categorised and develop a simple prioritisation framework for guiding resource allocation during the annual planning cycle. Borrowing from Defra in the UK, this could look at, for example: how critical the evidence is for the policy process, the impacts and risks of not having the evidence, whether the evidence and the work that goes into producing it underpins DEA's long-term strategic capability, and whether it leverages investment by other organisations (Shaxson, 2014). Applying this framework would help to 'pull' the evidence base in the desired direction over time. The benefit of this approach is that it would be relatively simple to apply and refine. The challenge is that it would need to ensure that the way the framework is structured does not end up privileging one type of evidence over others.

6 Final overview observations

This report sets out the learning from a year of working with a single government department. It is based on a rapid yet informative set of studies, which uncovered the main factors that influence how it sources, handles and uses evidence. It is clear that the evidence, and the processes that use it, are intimately linked. It is not possible to talk about the evidence without talking about how policy teams within DEA work to frame the issues and scope the questions, assemble existing and new evidence and interpret the evidence to inform their decisions. Interviewees acknowledged that the best processes were participatory and inclusive and that this meant raising the quality of stakeholder engagements, whether those are between policy teams and scientific advisors, other government departments, industry associations or CSOs. Scaling up participatory and inclusive approaches would mean allocating sufficient resources to these engagement processes, and allowing enough time for all voices to be heard and any disagreements to be aired.

There are already many examples of good practice in how DEA officials frame the issues and how they source, assemble and use evidence. Across the department, individuals and teams continue to make significant efforts to improve DEA's approach to evidence-informed policy-making. The RD&E Framework represents a concrete attempt to describe what such an approach looks like, what it hopes to achieve and how it could be implemented. However, it is not a simple matter to make the necessary changes. DEA officials face many different pressures that shape how they work with evidence. External pressures such as the national planning and reporting processes may encourage a short-term focus on reporting compliance with a plan or a set of targets. A strong culture of technical excellence, particularly within the natural sciences, may lead to a technocratic approach to using evidence. This could be balanced by re-emphasising DEA's stated ambition for development that is socially, economically and environmentally sustainable and of a more inclusive and participatory approach. Like government departments across the world, this is a large, complex and bureaucratic organisation. People find it hard to share what they have learned, unless this relates directly to one of the mandatory processes of policy planning or reporting. They struggle with too many meetings with agendas that are too long for the time available. While the skill level around evidence in DEA is generally fairly high, more could always be done to improve people's knowledge of specific techniques.

Work to strengthen DEA's approach to evidence emerged from the middle of the organisation. Senior managers have encouraged the devolution of responsibility for implementing the RD&E Framework, so individual thematic programmes can tailor it to their own specific needs. This has benefits in that the programmes are more likely to develop something that is sustainable within their individual contexts. However, it has potential costs. Learning may not be shared with other themes, and by working individually people may miss out on savings that could come from a joint approach. Greater senior management ownership of the work on evidence approach could help build consistency across the organisation and ensure sufficient resources are available.

For this to happen, DEA could benefit from developing an approach to actively managing its evidence base, developing clear frameworks for prioritising spending on evidence and adapting and refining them over time. This may be a complex process, but it could ultimately give managers greater control over their resources and encourage them to manage their limited budgets more effectively. This approach, of developing evidence strategies and rolling implementation plans, is being actively piloted by two themes.

DEA has made a strong start, but strengthening an evidence-informed approach to policy is a long-term process. The VakaYiko project has identified a set of five guidelines that will help underpin work to strengthen the department's use of evidence. These are set out in the third paper in this series, *Guidelines and good practices for evidence-informed polic-making in a government department* (Wills et al., 2016), but summarised here:

1. Use a broad definition of 'robust' evidence
2. Link evidence needs to policy priorities
3. Link an evidence-informed approach with business planning, reporting and budgeting
4. Adopt inclusive and participatory policy processes
5. Co-design and co-produce evidence and policy.

The project's work has also identified several areas where further improvement could be made in the short to medium term. First, there could be a stronger focus on taking a **strategic approach** to managing the evidence

base. This links to Guidelines 1 and 2, and would help DEA make the most effective use of all the evidence available to it, to meet all its policy priorities. Second, DEA could improve its strategic **resourcing and planning for evidence**. This links to Principle 3 and would help ensure any new systems and processes put in place to improve the department's use of evidence are embedded in its normal business practices. Third, it is important to ensure an evidence-informed approach to policy-making is a **sectoral approach.** This is linked to Guidelines 1 and 2, but is focused on ensuring changes to how evidence is used in policy-making include all stakeholders in the environmental sector, particularly provincial and local governments. Fourth, and linked to Guidelines 4 and 5, South Africa's divided history and its continuing social, economic and environmental problems mean an evidence-informed approach to policy-making must also be **participatory and inclusive**. Finally, DEA has devolved responsibility for implementing an evidence-informed approach to theme levels: it has consciously chosen not to try to impose a one-size-fits-all template onto the department. Linked to Principle 3, it is important that effort is put into **sharing good practice around evidence** so that the department as a whole can benefit and can adapt its processes over time.

Piloting some of these approaches and scaling up the ones that are effective should lead to a wide range of benefits for DEA as a whole, and help answer the questions set out at the beginning of this report. It could help DEA use evidence more effectively to meet its reporting needs, to anticipate 'hot potatoes' and to understand long-term trends. It could also help the department strengthen its understanding of how to deliver South Africa's goals for its society and economy, not only its natural environment. A more inclusive approach to policy development builds trust between all stakeholders and can improve the social legitimacy of the policies that emerge from it. And being able to allocate resources for evidence against a transparent prioritisation framework could help DEA understand beter what it spends on evidence, and to do so more effectively and efficiently.

The final question is how this will all lead to the improved delivery of outcomes for South Africa's citizens and its natural environment. Embedding an evidence-informed approach across the department could help put in place the structures, skills and processes that – if they are used well – would support a more robust approach to diagnosis, planning, implementation, monitoring and reporting on DEA's policy-making.

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