MAPS
Mitigation Action Plans & Scenarios

RESEARCH PAPER

Implementation of the municipal energy efficiency and demand side management programme in South Africa.

ISSUE 33

Developing countries exploring pathways to climate compatibility

Implementation of the municipal energy efficiency and demand side management programme in South Africa.

Date: 17/08/2015

Country: South Africa

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The following citation should be used for this document:

Kruger, W., Tait , L. 2015. Implementation of the municipal energy efficiency and demand side management in South Africa

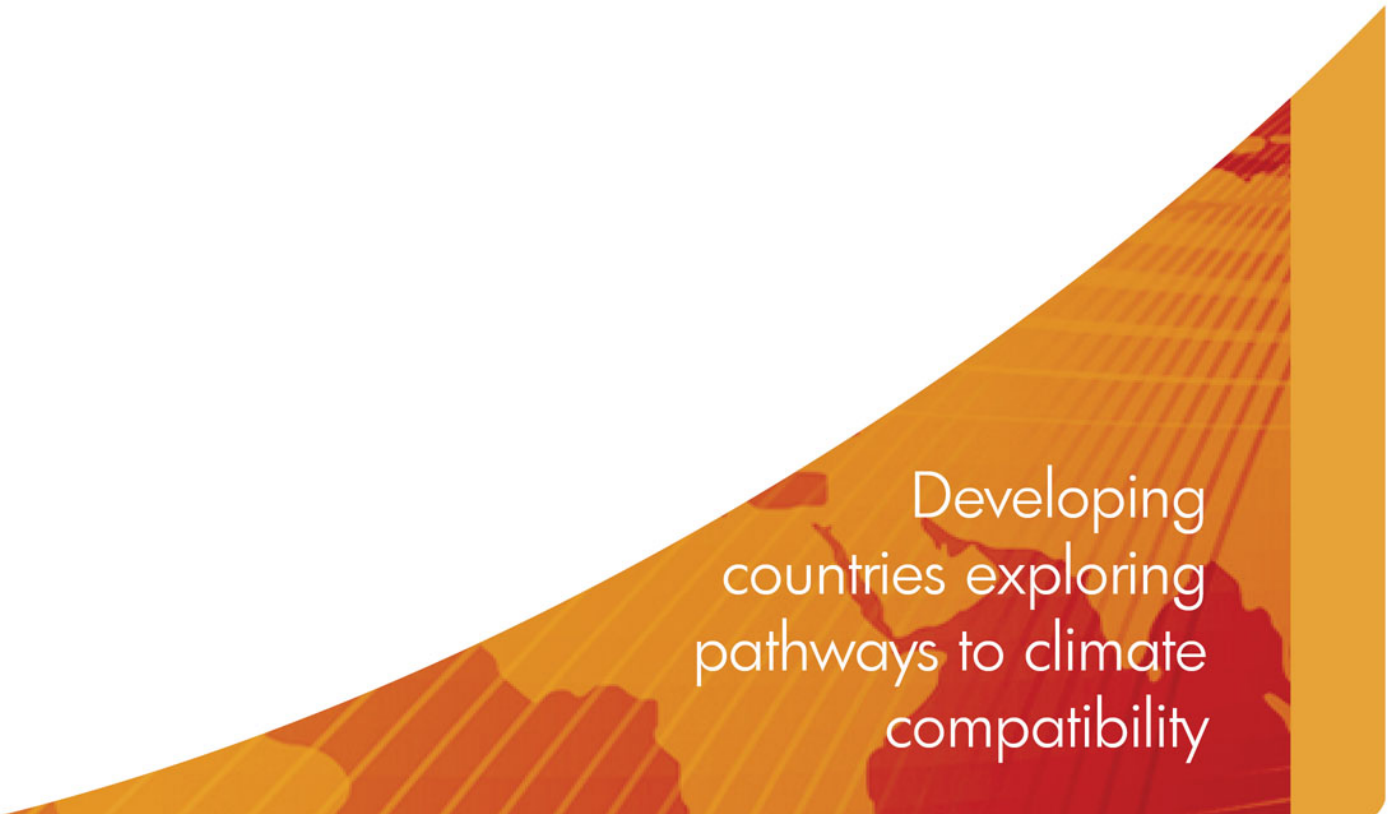

Table of Contents

ACKNOWLEDGEMENTS

Support and input was provided by Sustainable Energy Africa (SEA).

This case study is part of a series that collectively aims to investigate policy implementation in a systematic way – applying existing theoretical frameworks to examples of climate related projects in practice. These case studies inform a comparative research paper that aims to collate the insights, and potentially lessons, on how to consider the 'implementability' of climate projects and programmes for the MAPS national planning processes. For this particular case study we examine the energy efficiency and demand-side management programmes in municipalities in South Africa.

1. INTRODUCTION

This research is interested in the drivers and experiences of implementation with respect to carbon-mitigating policies and programmes. We sought a case study of public sector implementation of a programme with mitigation benefits, even if this was not the primary motivation for the programme's development. Climate change mitigation is only one of many pressing, and sometimes competing, priorities on governmental agendas. Many climate change actions take their impetus not from their climate mitigation potential, but rather their contributions to other developmental priorities. Taking national climate change pledges or policies to the next stage of successful implementation requires consideration of their strategic alignment with other national priorities and an understanding of the complexities of achieving multiple policy objectives. We are therefore interested in exploring experiences where programmes, with good implementation experience, came about in terms of alignment with other policy objectives and how this has shaped and affected climate objectives. We explore the case of the Energy Efficiency and Demand-Side Management (EEDSM) programme which targets the reduction of electricity consumption in municipalities (which are major consumers of electricity in South Africa).

South Africa has a highly energy-intensive economy with an energy consumption per unit of GDP closer to that of many developed rather than developing countries (DoE 2008). This is driven by highly energy-intensive mining and industrial sectors, but is also due to excessive or inefficient consumption facilitated by historically low electricity prices (National Treasury 2011). However, the conditions in the energy sector that initially facilitated inefficient consumption are rapidly changing in the South African economy. Electricity supply shortages and rising costs have put a much greater emphasis in the national context on the efficient use of energy to alleviate energy security constraints. To this end there are various policy initiatives targeting energy efficiency. Although energy efficiency is often framed as a relatively easy-to-implement mitigation option, real-world contexts are often not so simple. Bureaucratic procedures can be inflexible to change, the actors involved often have competing motivations and strategies, and various institutional practices are

often not sufficiently aligned to enable smooth implementation. This research is interested in these factors and how they impact the process of implementation. Interviews with key stakeholders at national and municipal levels were undertaken and we make use of the 5C framework, developed by Najam (1995), to structure the investigation of the implementation experiences. The 5C framework identifies five important clusters of variables that are relevant to understand: these include context, content, commitment, capacity and clients and coalitions.

The rest of this report is structured as follows: section 2 introduces the conceptual framework used for the analysis, section 3 describes the methods undertaken and section 4 provides an introduction and overview of the EEDSM programme. Section 5 discusses the implementation of the programme in terms of the 5 Cs and their interactions, whilst section 6 presents the conclusions and recommendations.

2. CONCEPTUAL FRAMEWORK TO INVESTIGATE IMPLEMENTATION

The term 'implementation' is often used to refer to both a process and a set of outcomes or results. Analytically, studies interested in the former are concerned with a programmatic enquiry into the implementation process, whilst studies focusing on the latter typically evaluate the impact on a policy's objectives, for example energy security. The primary line of enquiry of this research is into the implementation process of the EEDSM programme. Policy implementation is a continual process requiring the management of changing conditions over time (Najam 1995 & Brynard 2003) and typically involving many actors at different levels of governance.

Analytical approaches to understanding and investigating policy implementation have evolved over time (Parsons 1995). The first generation of studies, so-called 'top-down' studies, explored implementation as a linear process from policy design to implementation. Success was understood as minimal deviation from the original specified policy objectives. These studies are typically underpinned by assumptions of rationality in decision-making and interactions (Matland 1995). In reality such a logical sequence rarely holds and there are often no obvious causal links between stages in the process (Capano 2009). In contrast, second-generation studies placed their emphasis on 'bottom-up' approaches and explored the role of other actors in influencing the implementation process, in particular so-called 'street-level bureaucrats' (Lipsky 1980). These studies investigated how implementation is shaped by the choices and discretionary action of individuals at the front line, as opposed to policy formulations. Whilst these studies typically acknowledge greater complexity, they are also criticised for ignoring the role that power and politics at the front end may play as well (Nilsen et al 2013). A third generation of implementation researchers has explored various 'hybrid models' that typically acknowledge complexity (Matland 1995 & Nilsen et al 2013). However, attempts to identify general theories of implementation are decreasing (Nilsen et al 2013). Most today would propose that the real world is too complex and contextualised, and the

systems of implementation too varied, to generalise causal explanations (Nilsen et al 2013, Brynard 2003 & Najam 1995). Instead there exist a multitude of analytical approaches to investigating and making sense of implementation processes.

This research understands implementation to be an evolutionary process (Majone & Wildavskey 1978, Najam 1995). This implies that "policy is significant not because it sets the exact course of implementation but because it shapes the potential for action" (Brynard 2005, p. 656). This potential is shaped in practice as actors alter objectives, resource allocations and political alignments over time (Brynard 2003). Policy implementation is therefore less about adherence to policy objectives, but rather understanding the dynamic and iterative engagements among various actors at various scales over time. The theme of analysis is therefore this process and the points of interaction and negotiation between actors (Lewis and Flynn 1978). Najam (1995, p. 34) frames implementation as "a dynamic process of negotiation between multiple actors, operating at multiple levels, within and between multiple organisations."

To explore these interactions we draw on the 5Cs protocol that was first developed by Najam (1995) as a framework to organise and structure our investigation of the implementation process. This framework is independent of theoretical approach or contextual variations such as political systems or institutional arrangements. Rather the framework, based on a review of implementation studies, puts forward variables that commonly affect the implementation process. These include content, context, commitment, capacity, and clients and coalitions. The variables themselves are generic and must be analysed and interpreted within a particular context to understand the degree of their influence and interactions. Further they should not be investigated in a tick-box manner. From a systems theory perspective, understanding implementation must acknowledge the complex interactions between variables and how they affect one another. Rather than viewing these variables independently, Najam believes the inter-relationships between different variables is as important. These variables are defined as follows for the purpose of this study:

- **Content** – what the policy aims to do, its goals and objectives and methods to solve problems.
- **Context** – the institutional context through which a policy must travel as well as the external context (politics, socio-economic issues, events etc).
- **Commitment** – the commitment of key actors to the goals and methods of the policy at various levels.
- **Capacity** – of those expected to execute all parts of the policy implementation – from managing and administration to technical skills required for actions.
- **Clients and coalitions** – those actors whose interests are affected by the policy and the strategies they employ in strengthening or weakening the policy's implementation.

3. METHODS

The aim of this case study was to better understand the context of implementation at both national and municipal levels. It has adopted interview methods with a range of different stakeholders involved in the EEDSM programme. The aim was to understand various perspectives to gain a more thorough and nuanced understanding of the dynamics of the implementation process. Municipalities were selected in order to get a range of characteristics in terms of size, internal capacity and experience with the EEDSM programme to date. A list of these institutions interviewed include:

- the Department of Energy
- GIZ
- the National Treasury
- the South Africa Local Government Association (SALGA)
- municipalities
  - three metropolitan cities – City of Cape Town, City of Tshwane and City of Johannesburg
  - two secondary cities – Mbombela and Polokwane/Gamagara
  - three smaller municipalities – Swartland, Mantsopa and Mafube

The findings are reported on in a case history format in section 4 to give the reader an overview of the programme to date. The most salient discussion points are then discussed within the 5Cs protocol, commenting on those factors and their interactions that have proved significant in the process to date.

4. OVERVIEW OF THE EEDSM PROGRAMME IN SA

The EEDSM programme targets electricity reduction within municipal operations, focused on retrofitting existing infrastructure. The National Treasury initiated the programme in response to an electricity supply crisis in 2008 in which the country experienced rolling blackouts. Since then responsibility for managing and administering the programme has been handed over to the Department of Energy. Since its start in 2009 significant funding (over R1 billion) has been dedicated towards the programme and 54 municipalities have participated. This section gives an overview of the genesis and development of the programme, its design and content, the experiences of the key role-players involved as well as successes and challenges associated with implementation activities to date.

1.2. Policy framework for energy efficiency in South Africa and the development of the EEDSM programme

The policy landscape in South Africa for energy efficiency is populated with a wide range of policies and programmes initiated by various actors. The Department of Energy (DoE), the National Energy Regulator of South Africa (NERSA), the National Treasury as well as the National Planning Commission (NPC) have all been involved in or initiated policies or programmes. With this multiplicity of actors and policies, there is often no clear linkage or coordination between different

interventions. Whilst the DoE's Energy Efficiency Strategies (2005 and 2008) should theoretically provide an overarching policy framework, many interventions are not situated in these strategy documents. Municipal energy efficiency activities for example receive virtually no focus or mention in the existing policy framework. The current EEDSM programme does not originate in any policy, but instead, as mentioned above, owes its genesis to the national electricity supply crisis in 2008. In response to this crisis and its threat to economic growth, the National Treasury convened a task team of government departments, NGOs and other experts. The National Electricity Response Team was tasked with identifying solutions to the crisis to ameliorate the negative impacts on the economy and developed the municipal EEDSM programme as a supply shortage response. The proposal was presented to, and approved by, parliament for inclusion in the Division of Revenue Act which provides for the distribution of national revenue to different spheres of government. Despite no original policy framework the programme has been taken up and implemented fairly widely among municipalities. In contrast, many other proposed EE activities located within the DoE's overarching Energy Efficiency Strategies remain unimplemented. The interplay of wider contextual factors has proved instrumental in initiating momentum and support for this programme. Once initiated, the National Treasury handed the continuing ownership and management of the programme to the DoE. The programme now sits within the DoE's Energy Efficiency and Environment Directorate which falls under the Clean Energy Directorate.

At the municipal level, in the absence of any legislative mandate, the take-up of the programme is based on the voluntary interest expressed by municipalities. Building support to adopt and implement the programme has reportedly been a challenge. Energy efficiency or even energy security are not high on local level political agendas which are much more focused on fulfilling service delivery mandates. The extent of municipal take-up of the EEDSM programme is largely attributed to the fact that it is fully funded by national government. In most cases a local champion in the municipality - willing to build support, drive the programme and overcome institutional hurdles - has been a key component in successful implementation accounts.

Table 1: Energy Efficiency Legislation – South Africa (Source: SANEDI)

Policy	Description
Energy White Paper of 1998	*This paper identifies the need for demand-side management and the development and promotion of energy efficiency in South Africa. It requires energy policies to consider 'energy efficiency and energy conservation' within the Integrated Resource Planning (IRP) framework from both supply- and demand-sides in meeting energy service needs.*
National Energy Efficiency Strategy for South Africa 2005 (NEES), Reviewed 2008	*NEES sets outs a national target for energy efficiency of at least 12% by 2015 with sectoral targets ranging from 9% for transport through to 15% for industry, commerce and the public sector.*
Electricity Regulation Act (Act 4 of 2006)	*The Act established a national regulatory framework for the electricity supply industry which made the National Energy Regulator (NERSA) the custodian and enforcer of the national electricity regulatory framework and initiatives.*

National Energy Act (Act 34 of 2008)	*The National Energy Act was legislated to ensure that diverse energy resources are available, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, taking into account environmental management requirements and interactions amongst economic sectors. This act makes provision for the development of the Integrated Energy Plan and the formation of the South African National Energy Development Institute whose functions are to undertake energy efficiency measures as directed by the Minister to increase energy efficiency throughout the economy, to increase the gross domestic product per unit of energy consumed, and to optimise the utilisation of finite energy resources.*
Integrated Resource Plan (IRP) 2010	*The IRP 2010's revised balanced scenario sets out specific targets for renewable energy and energy efficiency. The IRP provides insight into the proposed new build options including renewable as well as the energy savings expected from DSM programmes.*
Industrial Policy Action Plan (IPAP2) 2012/2013 – 2013/14	*IPAP2 aims to better align trade and industry policies for certain industries of which five new main groups of focus will be targeted amongst the new groups are the green and energy saving industries.*
Industrial Policy Action Plan (IPAP) 2014/2015, Released by the Departmnet of Trade and Industry (DTI) for public comment 2012	*IPAP 2014/2015 includes the Manufacturing Competitiveness Enhancement Programme that will provide enhanced manufacturing support. The Production Incentive programme will include a green technology upgrading grant of between 30-50% for investments in technology and processes that improve energy efficiency and greener production processes.*
Income Tax Act – Regulations on tax allowances for Energy Efficiency Savings	*S12I allows for additional depreciation allowances up to 55% for greenfield projects over R200 million, one of the rating criteria being energy efficiency savings. S12L provides a tax deduction to a taxpayer who is energy-efficient, with a focus on renewable energy.* *Other tax allowances that are applicable to business include S12C, S11e, S13 and others that provide general depreciation of asset allowances that are applicable not only to ESCo businesses, but also to any business that meets the section requirements.*
Building Regulations & Building Code (SANS 10400-XA:2011) with SANS 204	*The regulations require construction standards on energy efficiency and energy use in the built environment, with all new buildings requiring energy efficiency initiatives prior to municipal approval.*
SANS 941: Energy efficiency of electrical and electronic apparatus	*This standard covers energy efficiency requirements, measurement methods and energy efficiency labelling of electrical and electronic apparatus, thus impacting manufacturers and importers.*
Carbon Taxes-2013/2014	*The National Treasury proposed a carbon tax at a rate of R120 per ton of carbon dioxide equivalent (CO2e) on direct emissions and will increase by 10% p.a. until 2020. This has not yet been approved and implemented.*
Gazetted energy tax incentive regulations	*The National Treasury and the Department of Energy have gazetted Energy Efficiency Tax Incentive Regulations that aim to incentivise investment in energy efficiency measures.*

1.3. Overview of municipal allocations

The take-up of the programme by municipalities has grown over time and to date 54 out of a total 294 municipalities have been part of it. Many municipalities have participated over successive years, receiving multiple fund allocations. The table below provides a breakdown of EEDSM grant allocations by municipality for the 2012/13 period. This is the first year for which disaggregated figures are available in the DoE annual report, so it is not clear how this breakdown has changed over time. As the table shows, almost all metropolitan municipalities (there are eight in total) were

included in the programme that year and received the biggest portion of funding. This is likely indicative of the larger scale of interventions in these municipalities as well as greater capacity to manage and implement bigger projects and budgets.

Table 2: Municipal EEDSM grant allocations 2012/13 (Source: Department of Energy, Local Government Handbook 2015)

Province	Municipality	Type of Municipality	EEDSM Allocation (2012/13)	% of total EEDSM	Total Municipal Revenue (2013/14)	EEDSM as % of total municipal budget
Eastern Cape	Buffalo City	Metropolitan	R4 579 000	3%	R4 398 673 000	0,1%
	Nelson Mandela Bay	Metropolitan	R12 000 000	7%	R8 172 499 000	0,1%
	Nkonkobe	Local	R5 000 000	3%	R201 614 000	2,5%
Free State	Mangaung	Metropolitan	R8 000 000	4%	R5 425 505 000	0,1%
	Mantsopa	Local	R8 000 000	4%	R219 592 000	3,6%
	Matjabeng	Secondary city	R6 158 000	3%	R2 017 099 000	0,3%
	Moqhaka	Local	R3 000 000	2%	R486 109 000	0,6%
	Mafube	Local	R5 000 000	3%	R99 286 000	5,0%
Gauteng	Ekhuruleni	Metropolitan	R16 000 000	9%	R25 624 829 000	0,1%
	Midvaal	Local	R9 000 000	5%	R677 788 000	1,3%
	Randfontein	Local	R5 000 000	3%	R777 088 000	0,6%
KwaZulu-Natal	eThekwini	Metropolitan	R15 000 000	8%	R28 079 670 000	0,1%
	Hibiscus	Local	R421 000	0%	R549 926 000	0,1%
	Sisonke	Local	R5 000 000	3%	R480 386 000	1,0%
Limpopo	Ephraim Mogale	Local	R5 000 000	3%	R194 018 000	2,6%
	Greater Tzaneen	Local	R7 000 000	4%	R876 068 000	0,8%
	Polokwane	Secondary city	R10 000 000	6%	R2 307 736 000	0,4%
	Capricorn District	District	R421 000	0%	R685 563 000	0,1%
Mpumalanga	Steve Tshwete	Secondary city	R5 000 000	3%	R192 980 000	2,6%
	Ehlanzeni District	Local	R5 000 000	3%	R1 225 293 000	0,4%
Northern Cape	Khai-Ma	Local	R3 000 000	2%	R42 856 000	7,0%
North West	Madibeng	Secondary city	R3 000 000	2%	R1 035 129 000	0,3%

	Rustenburg	Secondary city	R5 722 000	3%	R2 774 345 000	0,2%
	Naledi	Local	R421 000	0%	R276 151 000	0,2%
Western Cape	City of Cape Town	Metropolitan	R16 000 000	9%	R26 601 856 000	0,1%
	Swartland	Local	R5 000 000	3%	R399 125 000	1,3%
	Drakenstein	Secondary city	R5 000 000	3%	R1 447 600 000	0,3%
	George	Secondary city	R5 000 000	3%	R1 142 761 000	0,4%
	Beaufort West	Local	R3 000 000	2%	R208 818 000	1,4%
	TOTAL		**R180 722 000**			

The grant allocation process has not been undertaken in a transparent manner. There are no communicated selection criteria for how business plans are evaluated and prioritised, and final funding allocation decisions made. This process, amidst accounts of ad-hoc allocations, has drawn criticism from stakeholders. In the initial phase of the programme there are examples of funding being allocated to municipalities without any prior consultation or requests from the recipient municipalities, requiring post hoc business plan development and planning. In the 2014/15 financial year, 53 business plan applications were submitted with 30 approved. Of these 30 not all were then actually allocated funding by the DoE.

In addition to this process municipalities expressed frustration with the timelines for funding allocations. Despite DORA listing financial allocations over a three-year period this programme only makes allocations for one year. This greatly increases the bureaucratic burden on municipalities, requiring the annual development and submission of business plans as well as creating new tendering and procurement process each time. With no certainty on being successful in future years this also inhibits the development of bigger and longer-term projects.

Despite an increase in the number of municipalities participating in the programme over time, total funding allocations granted have been declining as shown in the table below. This is attributed to tighter fiscal constraints, but also to the National Treasury's perceptions of poor programmatic performance. Poor rates of reporting and monitoring and verification activities have frustrated the National Treasury, as funders, and led them to the conclusion that the programme is performing poorly overall.

Table 3: EEDSM Grant Allocations by year 2009 - 2014 (Source: National Treasury)

YEAR	GRANT AMOUNT
2009	R175 000 000
2010	R220 000 000
2011	R280 000 000
2012	R200 000 000
2013	R180 722 000
2014	R136 905 000

1.4. Programme design and content

The focus of interventions has been on retrofitting existing municipal infrastructure with energy-efficient technologies. It commenced with public lighting including street- and traffic-lighting, and municipal building lighting. All new municipal applicants to the programme are expected to start with these interventions. These were seen as an easy to implement starting points for interventions, rather than on their relative merit in terms of efficiency gains, cost-effectiveness or payback periods. Over time the programme scope has expanded to include public buildings and high and lighting, and may include waste-water works in the future.

In the initial design of the programme funding was reserved for the costs related to purchase and installation of the hardware only, such as efficient light bulbs. No provisions were made for municipal staff costs or training and capacity building. However, the municipal stakeholders interviewed comment that the scope of activities required for EEDSM implementation requires dedicated, full-time staff with particular technical skills. The DoE has subsequently revised this, and currently one per cent of a municipality's EEDSM project budget can be allocated for capacity building. However, this was reported by municipal stakeholders to still be inadequate, typically not able to fund the extent of the required technical training for staff, nor able to cover a full-time salary for a dedicated EEDSM employee. There remains a sentiment among municipalities that the programme is not sufficiently supportive of the human capacity development that is required to implement it. Take up and implementation success has in practice depended on a capable champion within the municipality who has been willing to take on the additional burden of work the programme activities has entailed.

Some stakeholders regard the current programme design as more effectively targeting short-term and marginal changes, rather than institutionalising energy efficiency as a practice in municipalities. The exclusive focus on existing infrastructure rather than including new build

infrastructure projects is an example. These projects offer no incentive to make more systemic changes to municipal practises, like amending procurement regulations or changing decision-making over the longer term. This results in perverse situations where, for example, municipalities may be concurrently retrofitting existing infrastructure and continuing to install cheaper inefficient equipment on new infrastructure elsewhere. Without longer-term changes to business practises there was a general sentiment among stakeholders that, if the national programme ends, many of the energy efficiency activities of most municipalities could cease as well. Despite these programmatic concerns it is clear from stakeholder interviews that this programme has influenced a wide scope of energy-efficient activities to date and has grown municipal capacity in this regard. It has been instrumental in building a profile for energy efficiency in South African cities that did not previously exist.

Aligning this programme with municipal institutional frameworks and regulations such as the Municipal Finance Management Act (MFMA) has proved challenging. The MFMA covers all areas of municipal operations, including procurement. The regulations stipulate that the funds for a tender for a service contract or piece of equipment must be secured in municipal accounts prior to that tender going out. In terms of the MFMA, therefore, municipalities must await approval of their EEDSM business plans before they may start tendering. In practical terms this means municipalities typically only have six months to spend their allocations, putting both them and their service providers under pressure. It also makes M&V processes difficult to conclude and constrains the planning and implementation of multi-year projects. The EEDSM programme further requires that all projects need to be concluded within national government's financial year (which runs from July to June) which is not synchronised with the municipal financial year-end (March). Despite these challenges the relatively simple nature of the retrofit projects funded to date (for example streetlight retrofits) has meant that the time constraints have not severely hindered implementation. However, as the scope of the programme increases and more extensive or complex interventions are undertaken, these issues will create more challenges. Some municipalities have got around these time pressures by, for example, contracting M&V service providers on a multi-year basis, but with the written understanding that this is contingent on the municipality being awarded EEDSM funding.

1.5. Financial savings of efficiency interventions

In general the financial savings associated with energy efficiency provide a strong incentive and are often the basis upon which a case is made in public or private institutions. However, municipalities' financial savings from their EEDSM activities have been ambiguous and difficult to determine. A number of factors complicate energy efficiency being a financial win-win for municipalities. Firstly, electricity theft, a pervasive issue across South Africa, can mean that substantial savings from streetlight retrofits do not show on a balance sheet. Secondly, municipal facilities are sometimes not metered. Electricity distribution within a municipal boundary includes both municipal and Eskom-owned infrastructure. Eskom charges a flat rate rather than consumption-based tariff to municipalities on their infrastructure, such as street lighting. Any savings from these retrofits do not therefore get passed on to the municipality. Despite municipal engagement with Eskom, this

reportedly remains unresolved. Thirdly, calculating the financial savings requires substantial effort by municipal staff in monitoring, requiring the compiling of information from various departments, who often may not necessarily record the required data. Since reporting on financial savings are not an EEDSM programmatic reporting requirement (whilst kWh savings are a requirement, financial savings are not), there is limited incentive for technical staff to devote the necessary time to doing so. The City of Cape Town did calculate the payback period for various interventions, as shown in the table below.

Table 4: EEDSM project payback periods - City of Cape Town

Projects	Payback period (years)
Street lights	6
Traffic lights	3
Buildings	13

Political interference in the use and distribution of funds has reportedly affected some municipalities. The MFMA does not enable the ring-fencing of particular funds, increasing the vulnerability of funding to be misappropriated. Responsibility for the EEDSM programme usually lies with a technical manager separate from the municipal finance department where these decisions are made. There were anecdotal accounts of funds being directed to particular projects linked to political interests or to other service delivery projects as well as to the paying of staff salaries. However, other municipal stakeholders commented that DORA, the financial mechanism through which the funding is distributed, with its strict reporting requirements, has ensured an additional measure of accountability which other less rigorous disbursement channels often lack.

1.1. Programme performance - reporting and monitoring and verification

Progress reporting and monitoring and verification of energy savings has been one of the major weaknesses of the programme to date, particularly from the perspective of the National Treasury. In the absence of this information none of the stakeholders interviewed could definitively comment on the overall levels of compliance, accountability or how well outcomes (in terms of energy savings) are being achieved. The National Treasury, for example, indicated that they had not received progress reporting from the DoE for several years. This is in no short part due to the capacity constraints within the DoE. The department's Energy Efficiency and Environment Directorate is reportedly severely understaffed to manage a programme of this scale. It has four staff members whose workload also includes other energy efficiency initiatives and one of whom is contracted by the German Agency for International Cooperation GIZ (through the South African-German Energy Programme). Their role has been to assist with administrative, technical and managerial activities within the DoE.

Reporting bottlenecks also exist at the municipal level, again attributed to capacity constraints. In addition to financial and procurement reporting requirements for DORA funding, there are technical audits and and M&V of energy savings required by the DoE. These are generally regarded as overly onerous for institutions that already lack capacity and also not warranted in terms of the depth of detail they require. It took even the most capacitated municipalities approximately two years to develop the necessary experience and systems to effectively utilise and report on the use of the EEDSM funds. Several stakeholders commented that the monitoring and auditing protocol could be greatly simplified and still provide sufficient information for monitoring and accountability purposes. The current reporting requirements are seen as emblematic of the disconnect that exists between national government's conception of the programme and the on-the-ground realities for the implementing agencies. Over time, reporting rates have improved due to municipalities and DoE staff building up experience, but overall it remains an issue. The year-by-year allocation timeframes and non-transparent allocation system means that experience in municipalities is not necessarily built upon. Those municipalities that have invested in developing their reporting systems may not receive an allocation the following year, whilst new municipal recipients must then go through the same development and capacity building phase.

5. DISCUSSION – THE 5 CS AND THEIR ROLE IN THE IMPLEMENTATION PROCESS

The 5C framework is useful to draw out and examine the key variables and their interactions that have influenced implementation. Instead of discussing each variable in isolation, we pick out several key themes in the implementation process and the underlying linkages between the key variables. As Najam (1995) notes, it is not about determining the importance of any one key variable, but rather to determine how they come together within a particular context to influence implementation actions or decision-making. The nature of different variables has also changed over time and consequently their influence and/or interactions with other variables.

1.1. Initial drivers for implementation

1.1.1. Context is everything: the starting point

This implementation experience has not followed a linear progression from agenda-setting to policy design and eventual programmatic action. In fact, as discussed, there was no original policy home out of which this programme arose. Instead an external contextual condition, the electricity supply crisis, was the driving factor. This key factor proved influential in galvanising a number of other necessary variables, including capacity and commitment, to initiate implementation of this programme. The electricity crisis attracted the commitment of the National Treasury, a department with the necessary capacity and resources, and which was sufficiently influential to initiate a big programme in a short period. Treasury organised a coalition of actors in a task team, who otherwise

were unlikely to have self-organised around this issue with the same efficacy at any other point in time. The centrality of the National Treasury as the actor driving the programme was repeatedly emphasised by respondents. Without the weight of this key institution in the beginning, it is unlikely that the programme would have been initiated and implemented. In turn, in the absence of this supply crisis, it is unlikely that the National Treasury would have played such a leading role in establishing a programme.

The fact that the programme was spurred by a crisis has had important implications not only in the initial stages, but also over the longer term. Firstly, the programme's funding was secured with parliamentary backing. This is significant in that it makes it harder to halt this funding allocation mechanism once initiated. So, even as the National Treasury's commitment to the programme declines, stopping the programme entirely will prove more difficult. This could contribute to prolonging the programme even in the absence of continued national commitment to do so. Secondly, the programme was not developed in a consultative manner with all stakeholders. The design was not conceptualised or inputted to by those actors who would eventually have to administer and implement the programme. The DoE effectively designed the detail of the programme, but allegedly has little understanding of the municipal context and did not consult them at all in this process. There appears to have been little recognition in the programme design of local governments' separate accountability channels, financial procedures, financial years and regulatory frameworks. The programme design, developed as a crisis response has also lacked a clear strategy and long-term vision, potentially impacting the longer-term sustainability of energy efficient activities beyond its own lifetime.

1.2. Sustaining implementation and the impact of the Cs

1.1.1. Capacity and commitment dynamics at national level

Maintaining the efficacy of the implementation process requires the ongoing commitment by the National Treasury as funders, and the DoE in their role as owners and administrators of the programme. As the programme has unfolded there are uncertainties about the commitment of both these players. Whilst the National Treasury's commitment was ensured initially by the energy crisis, other factors have come to influence this negatively over time. Perceptions of poor programmatic performance have led to declining support by the National Treasury. This is in part contributed to by capacity constraints in both local municipalities and the DoE regarding M&V and reporting. In the absence of the necessary evidence base of sector-wide results, none of those interviewed were able to definitively say how effectively the programme is running overall, both in terms of the process and results. But as evidence of their return on investment has not been adequately communicated to the National Treasury, their support and opinion of the programme has declined. This has also been contributed to by perceptions of inadequate capacity within the DoE to run the programme effectively.

The DoE's commitment to the programme has always been more ambiguous. From an alleged initial reluctance to take ownership of the programme, to the limited human resource capacity the department has devoted to administering it, many stakeholders conclude that DoE's commitment is limited. This has proved a continuing challenge for various aspects of implementation. Their lack of commitment, especially initially, could be related to the fact that they were handed a programme not situated directly within their policy framework and without any guidance or support to undertake the extra work. While the programme has now become more institutionalised within the department, the drive for improving its performance and coordination is still perceived to be lacking. Their commitment is definitely entwined with capacity constraints, although the direction of causality is unclear.

1.1.2. (Mis)alignment of content with municipal context, capacity and commitment

Municipal commitment towards EEDSM has been varied. This can partly be explained by the many urgent, competing needs at local government level, but also programme conditions imposed by the DoE that municipalities feel do not adequate suit their institutional contexts. This may have arisen from the lack of a consultative policy process involving all stakeholders in the programme's design. The programme is perceived not to be responsive to municipal implementation barriers. The perceived inability of the programme to respond to this municipal challenge, both in terms of contributions to training, but also through imposing allegedly unreasonable timeframes and reporting burdens, undermines its own success in local contexts.

Further, a municipality's primary responsibilities relate to service delivery and the technical activities related to it, such as maintaining and upgrading infrastructure. The EEDSM programme is considered additional to core activities and therefore does not find an automatic home within municipal agendas. Energy efficiency must compete with a wide range of other pressing economic and developmental priorities, most of which have greater prominence politically. Within a municipal context global issues such as climate change or even national issues such as energy security (except in times of crisis and blackouts) are not high on political agendas. Some municipal champions have developed more innovative ways of building support for the programme by trying to align it with other priorities. For instance one municipal respondent described securing political buy-in from the municipal manager by presenting the associated financial savings of the programme as a "service delivery" intervention by freeing up resources for investments in other areas of municipal infrastructure.

In the absence of alignment with other municipal priorities, municipal commitment and take-up will probably remain reliant on the initiative of individual champions taking on the extra work. Institutionalising the programme in the municipality by making it a part of job descriptions and normal procurement procedures would obviate the need to rely on particular individuals to keep the

programme going. Energy efficiency could potentially be better aligned with municipal objectives and institutionalised by embedding it as part of standard asset management procedures. Municipalities are continually replacing and maintaining infrastructure, and energy efficiency could be embedded in this core activity by incorporating it into procurement manuals and procedures. This would also free up the considerable amount of time and resources currently going into implementing EEDSM projects (for example energy auditing, business plan development, procurement processes, tender adjudication, reporting etc). The EEDSM grant allocations might then better be used for training of technical managers regarding the latest and most efficient technology choices, rewriting procurement manuals and tendering documents, and to cover the cost differentials between business-as-usual and efficient technologies as opposed to fully funding the new efficient hardware.

1.1.3. Capacity gaps, clients and coalitions

The already mentioned capacity gaps, both in the DoE as well as municipalities, have meant that a range of other actors have come on board to fill these gaps. GIZ, Sustainable Energy Africa and various service providers – both M&V consultants as well as hardware installers – provide technical support. In some cases, this support is mandated by the programme content (for example in the case of "independent" consultants performing technical audits and M&V functions). In others the capacity gaps present a potentially lucrative opportunity, with consultants actively engaged in developing baselines and business plans on behalf of municipalities with the informal understanding that they will be appointed to implement the envisaged energy efficiency projects. Still, in others, the technical support role is mandated by a different set of factors – such as the development cooperation agreements and official mandates of the GIZ's South African-German Energy programme. In effect, these are key players in maintaining the implementation process where capacity gaps in the officially mandated institutions compromise implementation.

6. CONCLUSION AND RECOMMENDATIONS

The EEDSM programme has instigated a wide scope of energy efficiency activities to date and has grown municipal capacity in this regard. It has been instrumental in building a profile for energy efficiency in South African cities that did not previously exist. This case study demonstrates some of the tensions inherent in programmes where the different actors involved in the design and implementation are motivated by different priorities. Ultimately, if a programme does not align well with the priorities of those frontline actors involved in its implementation, it will not be implemented effectively. Many challenges with the take-up of the EEDSM programme at a municipal level are attributable to the lack of political will to support energy efficiency in the face of competing service delivery priorities. The importance of consultative and iterative approaches between programme design and implementation is essential. Not all implementation challenges or barriers can be foreseen upfront and whilst some concessions have been made in the EEDSM programme design to address municipal challenges, there is clearly a need for better engagement between local and national levels.

Essentially, whilst the programme has instigated a huge number of initiatives that undoubtedly have impacted municipal consumption profiles, these have been isolated - specially funded project activities that are additional to business as usual activities. Whether these activities will be maintained beyond the lifetime of EEDSM funding is uncertain. The programme, developed in response to a crisis, was designed to achieve immediate results in the form of reduced electricity consumption. However, going forward more consideration should be given towards how the programme can sustain these more efficient consumption profiles by embedding energy efficiency within municipal operations. This might be through redeveloping infrastructural procurement practices, for example. The current programme is oriented more towards the short term in its timeframes and the types of projects it supports.

The following recommendations emerge from this research:

- Review the longer-term strategic vision and objectives of the programme and consider a revised approach that aims to institutionalise energy efficiency within standard asset management procedures.
- Increase support for municipal training and capacity building through increased funding provisions, formalised capacity building processes and/or learning exchanges between municipalities.
- Revise the M&V requirements – a simplified monitoring and verification process that takes account of municipal capacity constraints is essential to improving reporting outputs.
- Facilitate multi-year projects to address the constraints imposed on project timeframes by the MFMA and DoE requirements.
- Have more consultative engagement between national and local level stakeholders to ensure that operating constraints and challenges can be better accounted for.
- Initiate a more open and transparent funding allocation process to reduce confusion and support longer-term programmatic approaches in municipalities.

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