



What does the current NAMA-space in South Africa look like?

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Key findings:

- There is a disjuncture between what is reflected in the literature and what is observable in South Africa in relation to NAMAs.
- The main areas of mitigation activity are in renewable energy and energy efficiency.
- Yet these cannot be attributed to the NAMA concept *per se*.
- Domestically, the discourse about mitigation is framed by the National Climate Change Response White Paper of 2011, which itself seeks to relate to developmental policies in key sectors, such as energy and industry.



This paper is one of a series of country studies reflecting on the status of NAMAs in BASIC countries led by the Energy Research Institute (TERI), New Delhi,

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Abstract

Internationally South Africa is regarded as a leader in Nationally Appropriate Mitigation Action (NAMA) development, but is this actually the case? Similarly to other countries, South Africa has yet to formally submit a NAMA to the United Nations Framework Convention on Climate Change registry, nor have mitigation actions been articulated as NAMAs at a domestic policy level. This is not to say, however, that mitigation activities are not happening – in the areas of energy efficiency and renewable energy significant progress has been made in South Africa. Yet these cannot be attributed to the NAMA concept *per se*. Rather, the drivers relate to energy policy and – very broadly speaking – national climate change objectives as outlined in the current National Climate Change Response Strategy. This paper reviews how South African NAMAs are presented in international literature and how this compares to mitigation actions and national policy development and implementation. It finds that there is disjuncture between what is reflected in the literature and what is observable in South Africa.

Acknowledgements

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1. Introduction

In 2009, South African President Jacob Zuma pledged to the United Nations Framework Convention on Climate Change (UNFCCC) to reduce emissions by 34% by 2020 and 42% by 2025 relative to business as usual and contingent on international support (RSA, 2011). As at November 2013 the South African government has not formally submitted any individual nationally appropriate mitigation action (NAMA) to the UNFCCC NAMA registry, nor has an official in-country process for NAMA selection been announced. This is not to say, however, that there has been no action on mitigation at a national level, but rather that the local discourse about mitigating carbon dioxide emissions is currently not employing the term ‘NAMA’. Furthermore, in the absence of an official, functioning NAMA process at a national level, actions and networks have emerged through the more ad-hoc interaction of various government departments, NGOs and private sector actors.

This paper surveys what is currently happening in the NAMA-like space in South Africa, reflecting the actors and institutions either working towards the preparation of formal/funded NAMAs or involved in current key mitigation activities. It reflects on and updates the 2011 South African Mitigation Actions (SAMA) country study by Tyler et al. There has been movement in the broader mitigation landscape since 2011, both in terms of policy developments and research, so it is important to update and build-upon the SAMA study that was researched and written prior to the launch of the Renewable Energy Independent Power Procurement Programme in August 2011 and the promulgation of the National Climate Change Response White Paper (NCCRWP) in November 2011. The primary objective of this paper is to map the current state of play with regards to NAMAs through a review of the current policy environment, recent literature and discussions with key stakeholders who are active in this space (see Figure 1). Providing a comprehensive list of all mitigation activities in South Africa in 2013 is beyond the scope of the research project, and would, anyway, represent a duplication of effort, as mitigation mapping exercises have already been undertaken by the South African government. As of March 2014 these mapping exercise reports remain outside of the public domain but are due to be released later in 2014.

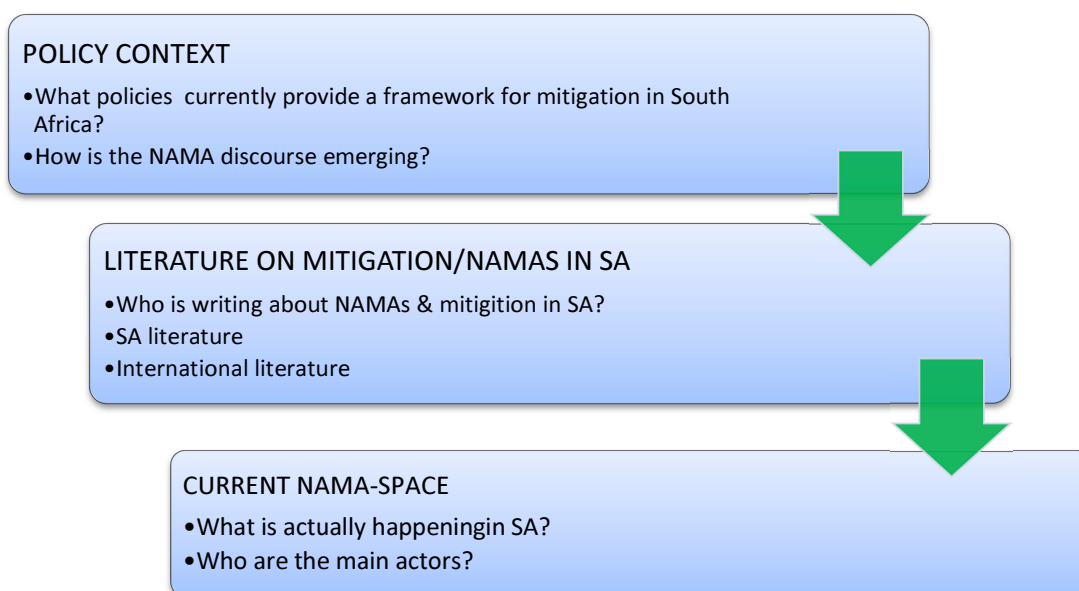


Figure 1: Approach to mapping the NAMA space

2. Current policy context

The climate change response in South Africa takes place in the South African context of enormous poverty, inequality and joblessness. Thus job creation – with the assumed effect of poverty reduction – has been identified as a fundamental policy driver at national level in the New Growth Path framework (ANC, 2011) and the National Planning Commission’s “Vision for 2030” (NPC, 2011). The importance thereof, even in as part of climate change response, is evidenced by the inclusion of “Job Creation” as section nine of the NCCRWP.

Individual actions with mitigation effects have been motivated by a wide range of drivers; often, least of which – thus far – has been their mitigation potential (Tyler et al., 2013). In the parlance of the climate change field, the “co-benefits” – clean air, reduced household expenditure on energy or better housing for the poor for example – have been key determinants of action. Nationally, movement in the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) appear driven by a combination of the scenario outcomes of the LTMS process, the dawning realisation that South Africa was on the brink of widespread blackouts; recognition of the vulnerability of exports to border carbon adjustments due to the carbon intensity of production, additional generation capacity, and economic development opportunities (Pickering, 2013) as well as political will in the form of the leadership by National Treasury and the Department of Energy.

South Africa’s hosting of the UNFCCC’s COP17 in Durban in 2011 also served as an important driver for the completion of a national climate response strategy. The international spotlight created invaluable momentum which was strategically leveraged by the DEA to bring to a close the policy-making process with the promulgation, in October 2011, of the National Climate Change Response White Paper (NCCRWP), South Africa’s key framing policy in respect of any NAMA-like activities.

The term ‘nationally appropriate mitigation action’ is not found explicitly in the NCCRWP, but actions with potential mitigation effects are framed under ‘Near-term Priority Flagship Programmes’ (DEA, 2011). These near-term programmes should consist of both new and scaled-up existing initiatives and are to be implemented in the interim – the two years following promulgation – whilst sectoral desired emission reduction outcomes and carbon budgets are being developed (DEA, 2011).

Of the eight Near-term Priority Flagship Programmes, seven have potential emission mitigating elements, namely: public works; water conservation and demand management; renewable energy; energy efficiency and energy demand management; transport; waste management; carbon capture and sequestration. The eighth focuses on adaptation and specifically on generating the body of knowledge required for creating an adaptation strategy for South Africa.

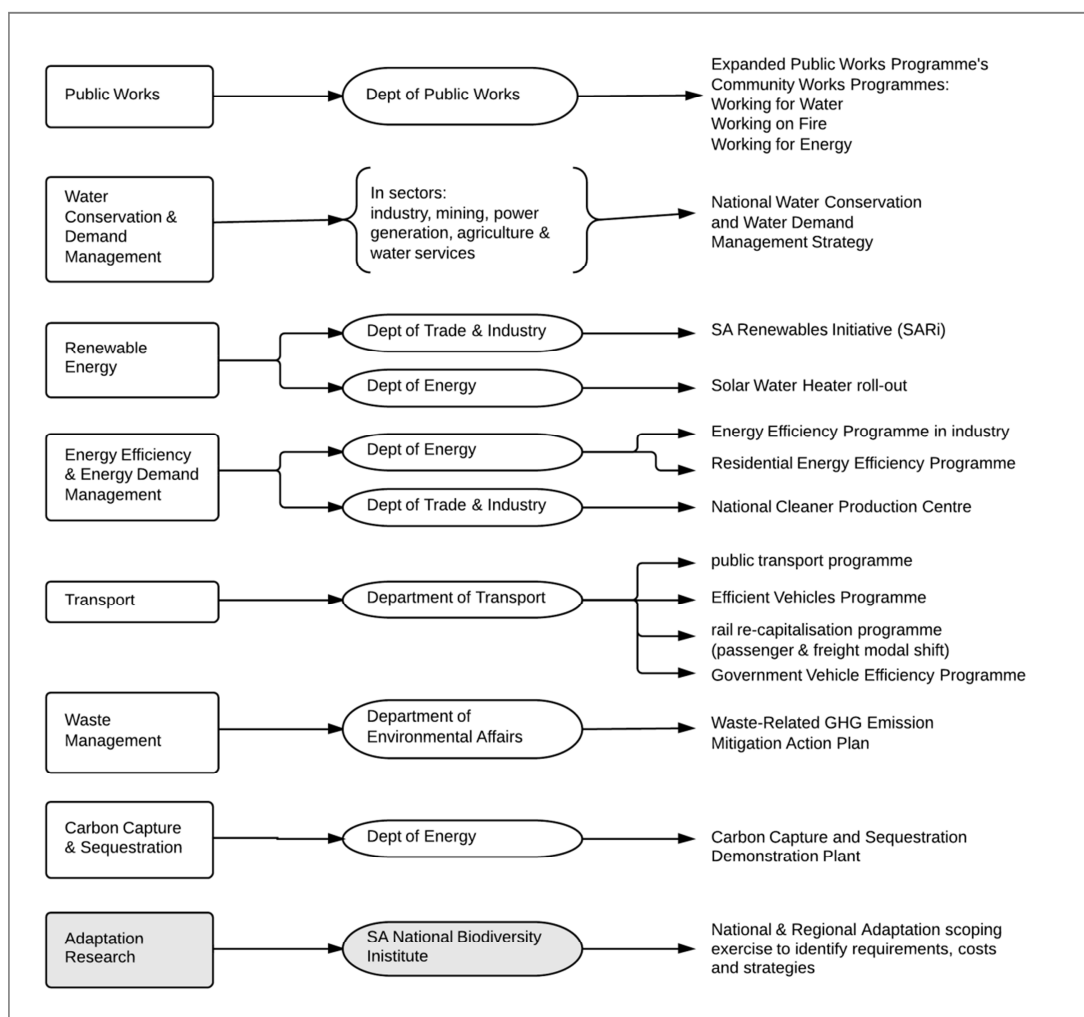


Figure 2: Near-term Priority Flagship Programmes in the NCCRWP

Source: Authors' visual representation of information in the NCCRWP

Institutionally the responsibility and oversight of the flagship programmes are the remit of the Inter-Ministerial Committee and the relevant Intergovernmental Committee on Climate Change sub-committees in collaboration with the appropriate line function ministries. The line function minister and ministries are tasked with elaborating a programme for implementation, comprising detailed analysis of expected outcomes and including how to realise local benefits and an annual reporting process proposal. Figure 2 highlights the responsible line departments or sectors and the intended strategies, plans or programmes outlined in the NCCRWP. This figure provides an outline of the government's intentions for contrast with the activities actually in progress which are outlined in Section 4 below.

In addition to the flagship programmes, the NCCRWP includes a number of other potential mitigation mechanisms, including: desired emission reduction outcomes (DEROs) at sector-level; carbon-budgeting; sectoral emissions strategies; greenhouse gas inventory; market-based instruments; and regulatory measures (DEA, 2011). It calls for a mix of economic instruments to be employed including both market-based instruments and incentives such as rebates (NT, 2013) as well as appropriate regulatory policy measures as part of its carbon-budgeting approach (DEA, 2011).

As Figure 2 shows, there is an emphasis on energy in that two of the seven mitigation-aligned flagships focus on energy. This is unsurprising, given that, according to the Second National Communication to the UNFCCC, 86% of South Africa's emissions are due to energy use and supply (RSA, 2011), as represented in Figure 3.

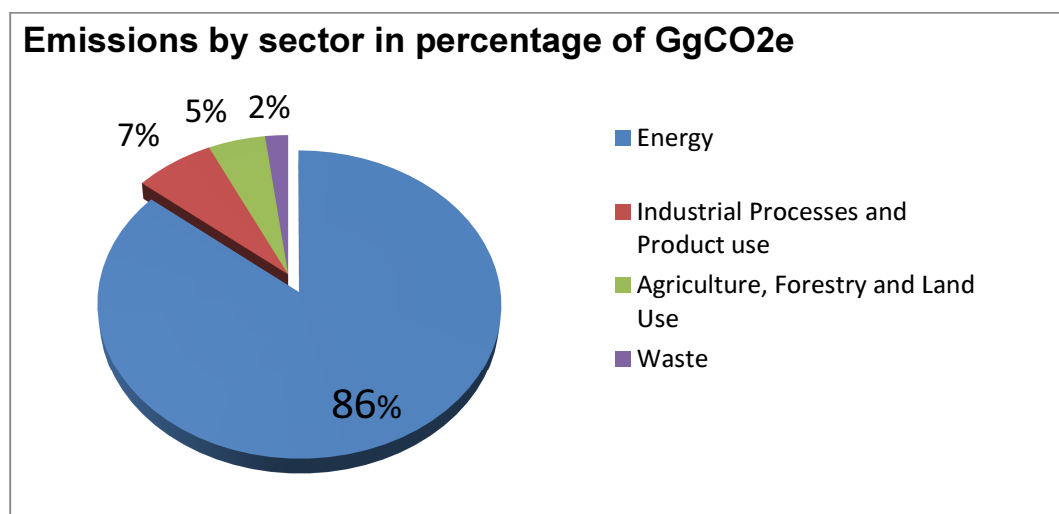


Figure 3: South Africa's total GHG emissions by sector including land use, land use change and forestry

Source: RSA (2011)

The Department of Environmental Affairs (DEA) is currently leading a wide ranging mitigation potential analysis to 'review current and future emission trends of key sectors, and analyse mitigation options',¹ due to be released in 2014. Given, however, that the emissions profile is dominated by the energy sector, its approach to reducing energy emissions will be an important component of the national mitigation effort, along with contributions from other sectors that may present more cost-efficient and feasible options. Any analysis of the NAMA-space in the country necessitates an examination of the key policy tools in the energy sector as well as current climate policy measures. The national climate policy refers to integrated planning, and seeks to mainstream climate change considerations into planning at local, provincial and national scale, and into other policy tools including the Integrated Resources Plan (IRP), the Integrated Energy Plan (IEP), the Industrial Policy Action Plan (IPAP) and the energy efficiency strategy review as well as the NCCRWP and the proposed carbon tax.

The policy-adjusted IRP 2010 (promulgated in 2011) asserts that it 'assists in fulfilling South Africa's commitments to mitigate climate change as expressed at the Copenhagen climate change summit' (DoE 2011). To this end it included a carbon constraint of 275 Mt CO₂-eq for the electricity sector. The electricity sector was initially apportioned 50% of national emissions, which was reduced to 45% as part of the updated IRP in 2013. The government also communicated the aim of implementing a systemic approach to facilitating the country's potential for green growth by introducing renewable energy as part of the IRP for electricity generation and through energy sector reforms and policy developments. Thus the IRP for electricity generation in South Africa plans the creation of 8 400 MW of new windpower generation, 8 400 MW of new photovoltaic generation and 1 000 MW of concentrated solar power generation over the period 2010 to 2030 (DoE 2011). The roll-out of this renewable energy commitment was initiated through the National Treasury-led Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) in a 're-bid' process, initiated in August 2011, after the original Renewable Energy Feed-In-Tariff (REFIT) process was scrapped. The REIPPPP is discussed in more detail in section 4.2 below.

¹ https://www.environment.gov.za/nccrp_stakeholderworkshop

South Africa developed a Renewable Energy White Paper in 2003, and an Energy Efficiency Strategy in 2005; the latter is currently under review for the second time. The Department of Energy (DoE) is currently developing a second IEP, a draft of which was subject to public consultation in September, October and November 2013.² The Electricity Regulations on New Generation Capacity (DoE, 2010) regulate planning for new generation capacity and make provision for the implementation of a REFIT bid programme, subsequently developed as the REIPPP procurement programme.

The fifth Industrial Policy Action Plan (IPAP 2013/14 – 2015/16) of the Department of Trade and Industry's (DTI) includes the development of a low-carbon roadmap for the manufacturing sector, including key milestones, such as the setting of GHG mitigation objectives for industrial sectors and a preliminary industrial policy roadmap to achieve these targets by the second quarter of the 2014/15 year. The DEA and DTI will lead work on this roadmap (DTI 2013). The renewable energy and energy efficiency sectors are both prioritised for industrial policy support, particularly through the implementation of local content requirements in the REIPPP programme, and building regulations.

3. NAMAs in the literature

As the local climate discourse is not focused on the term NAMA, mapping the status of NAMAs in the country is challenging, although there are institutions within and outside of South Africa that are making reference to activities in the NAMA-space in the country. Insight from this literature, however, remains speculative, as South Africa has yet to formally submit NAMAs to the UNFCCC. This section highlights some of the literature that refers to NAMA activity in South Africa and reflects on progress, as well as the disparity between the literature and the reality in the South African context. **Error! Reference source not found.** reflects on literature that explicitly refers to a particular mitigation action as a potential NAMA, rather than a comprehensive literature review of mitigation in South Africa. The full table appears in the appendix to this paper.

² http://www.energy.gov.za/files/iep_frame.html

Table 1: Brief summary of NAMAs as referred to in literature

<i>Action</i>	<i>Source (cited by)</i>	<i>Organisation</i>
South African Renewables Initiative	Ecofys NAMA database	Ecofys
	International Renewable Energy Agency (IRENA) Handbook	IRENA
	NAMAs – from concept to opportunity – brief	DLA Piper
Rollout of electric private passenger vehicles	Ecofys NAMA database	Ecofys
	Presentation	International Partnership on Mitigation and MRV
	The potential of electric vehicles to contribute to South Africa's greenhouse gas emissions targets and other developmental objectives: How appropriate is the investment in electric vehicles as a NAMA?	Energy Research Centre (ERC), UCT
Financing upgraded energy specifications of new low-income housing	Ecofys NAMA database	Ecofys South South North Development Bank of South Africa
	Presentation	International Partnership on Mitigation and MRV
Sustainable settlements facility (formerly the NSSF)	Tyler et al (2011)	ERC/Mitigation Action Plans and Scenarios (MAPS)
Pilot carbon capture and storage (CCS) project	The proposed CO ₂ test injection project in South Africa (Vincent et al 2013)	The South Africa–Europe Cooperation in Carbon Capture and Storage
CCS flagship programme	National Climate Change Response White Paper Presentation to stakeholders	DEA International Partnership on Mitigation and MRV
Carbon tax	Tyler et al (2011)	MAPS/ERC
Gautrain	Tyler et al (2011)	MAPS/ERC
	TransFER	GIZ
	Passenger modal shift: from road to rail – the Gautrain NAMA case	Department of Transport, South Africa
Cape Town Bus Rapid Transit system (BRT)	Tyler et al 2011	MAPS/ERC
Energy efficiency in public buildings (V-NAMA)	KfW 2013 Energy Forum	GIZ KfW (http://urbanleds.iclei.org/index.php?id=127&tx_ttnews%5Btt_news%5D=39&cHash=143ec085d97675c3d2c1914a606838fa)
National Climate Change Response White Paper Flagship Programmes Potential NAMAs from LTMS	Tracking mitigation actions in Africa – workshop presentation	International Partnership on Mitigation and MRV

The South African Renewables Initiative (SARI), was considered as a potential mitigation action by the South African Mitigation Action (SAMA) study, carried out by the Energy Research Centre at the University of Cape Town (Tyler et al 2011). In addition it has received attention in the international literature. The Ecofys NAMA database refers to the SARI as a NAMA, although it acknowledges that the NAMAs identified by the database are not necessarily officially submitted NAMAs, nor are they necessarily the priorities of the country governments of the NAMAs identified (Ecofys 2011). In 2012 a report written for DLA Piper

referred to the SARI as ‘The most successful NAMA currently in implementation stage’, and described its primary objectives as the mobilisation of funding, increasing expertise in the sector, and developing grid infrastructure. The International Renewable Energy Agency (IRENA) 2013 Handbook on Renewable Energy Nationally Appropriate Mitigation Actions (NAMAs) for Policy Makers and Project Developers, also characterises the SARI as a NAMA, one which is based on the IRP (2010), with the intention of adding renewable energy capacity to the national grid, and increasing private sector participation by developing a framework for IPPs. The REIPPPP was launched in 2011. Despite the international and domestic literature describing SARI as a successful example of an implemented NAMA (DLA Piper 2012) by pointing to the success of the REIPPPP (IRENA, 2013), in reality the role played by SARI in the promotion and success of the REIPPPP is far from clear. Some elements of the design of the SARI were incorporated as part of the design of the REIPPPP process – the use of ‘windows’ of bidding for instance – but that appears to be the extent of the SARI-REIPPPP crossover. Currently there are unconfirmed, anecdotal reports suggesting that the SARI has been scrapped at ministerial level; reports supported out by a complete lack of publicly available updates or new documentation at last check (November 2013).

The International Partnership on Mitigation and MRV was launched by Germany, South Africa and South Korea in May 2010. The Partnership was formed to strengthen capacity on MRV and mitigation activities, through collaborations between developed and developing countries. In May 2013 the Partnership hosted a regional workshop entitled ‘Tracking mitigation actions in Africa’ at which two main avenues for identifying potential NAMAs in South Africa were mooted. The first was to follow the flagship programmes outlined in the National Climate Change White Paper, as outlined in Figure 2. The second avenue was mitigation actions identified by the LTMS as potential NAMAs (www.mitigationpartnership.net):

- rollout of electric private passenger vehicles in South Africa;
- incremental funding of 10 GW of windpower up to 2020;
- financing upgraded energy specifications of new low-income housing;
- Incremental funding of 5GW of CSP up to 2020;
- carbon capture and storage;
- renewable energy feed-in tariffs (REFIT);
- demand-side management.

This section has provided examples of NAMAs in South Africa in the literature. However, Tyler et al (2013), draw attention to the fact that there has, as yet, been no submission from South Africa to the UNFCCC NAMA Registry, so that the term NAMA does not feature in domestic policy. This will be discussed further in this paper.

4. NAMAs ‘on the ground’

The previous section considered how NAMAs are being reflected in literature, and introduces and alludes to some of the discrepancies between what is being written and what is actually happening in the NAMA-space in South Africa. There does appear to be progress in mitigation activity, however, with activities emerging parallel to and independently of the elaboration of the NAMA concept. The following section reflects on the current situation in 2013 by briefly updating the four potential mitigation actions analysed in the South African Mitigation Action Case Study (Tyler et al 2011). It then considers key areas of mitigation where actions are underway and elaborates on one of the pilot studies highlighted in literature. The section then summarises some of the efforts to develop NAMAs that could potentially be submitted to the UNFCCC registry.

4.1 Reflecting on the SAMA study: What has happened since 2011?

Tyler et al (2011) considered four potential mitigation actions: the carbon tax, the SARI, the BRT system in Cape Town and the National Sustainable Settlements Facility (NSSF). These were considered at a time when much of the international climate discourse was focused on definitional issues relating to NAMAs. The debate has since shifted away from definitional issues towards readiness and implementation. Of the four selected, only the BRT had been implemented at the time of writing in 2011.

Brief reflections on these four actions below show uneven progress since 2011. The Cape Town BRT has been progressing at a slow but steady pace and the carbon tax was slated for introduction at the beginning of 2015, but this has been delayed until 2016. Conversely, the SARI appears to have disappeared from the discourse altogether and the NSSF, in the form it appeared in 2011, has not been implemented.

The BRT system, known as the MyCiti bus system, was introduced in Cape Town in 2010, not as a mitigation activity, but as a public transport initiative to meet the demands of the city. The implementation of the first phase 1A started in 2010 for the FIFA Soccer World Cup with an inner-city loop service, and in May 2011 a second line was operationalised. By early 2013, the BRT network had seen a rise of daily ridership about 6 000 to 20 000 rides since its launch (www.theatlanticcities.com/commute/2013/03/limits-bus-rapid-transit-cape-town-case-study/4968/). The introduction of the BRT to the informal residential areas of Cape Town was initially hindered due to resistance from the existing networks of taxi associations. A similar initiative – the Khaya bus service in Johannesburg – faced similar challenges with conflict with existing taxi associations. These issues were resolved through incorporating drivers and taxi owners into the initiatives. The city is still working to finalise operating agreements.

The proposed economy-wide carbon tax was to be gradually introduced in a phased approach from January 2015 at the rate of R120/ tCO₂e – although, given the tax-free thresholds built-into the first five years, the effective rate would be considerably lower. This rate would be escalated at 10% per annum until 31 December 2019. During the February 2014 budget speech, however, Minister Pravin Gordhan announced that the introduction of the carbon tax would be delayed until January 2016 (NT 2014). Nevertheless, the carbon tax is not expected to be the sole instrument to achieve South Africa's Copenhagen Accord pledge reductions (National Treasury 2013) and is seen in the NCCRWP as one of a mix of measures. Thus the carbon tax is intended to create a carbon price in order to encourage the most cost-effective mitigation measures in key sectors such as electricity generation, liquid fuels and transport.

As mentioned in Section 3, SARI is described as a key NAMA in international literature, but reference is actually made to the REIPPPP – indeed for many writers the two seem to be synonymous. In practice however, there has been little movement in relation to SARI, but the REIPPPP has continued to gain ground since the REFIT process was abandoned in favour of the 're-bid' process overseen by the National Treasury. A longer discussion of the REIPPPP follows in 4.2 below.

The Sustainable Settlements Facility (SSF) – formerly the NSSF – was conceptualised to administer financing to enable the Department of Human Settlements (DHS) to increase the mandatory specifications of all new subsidised housing in South Africa to include solar water heaters and thermal performance improvements such as orientation, roof overhangs and insulating building materials (Tyler et al 2011). The SSF has evolved since 2006, initially emerging as a concept from the lessons of the Kuyasa Clean Development Mechanism (CDM) demonstration project addressing methodological design issues in terms of carbon credits. In 2013, the SSF garnered DEA support to be developed as a NAMA. Emission reductions have been estimated at 168 million tCO₂ for a 28-year period (Moosa, 2012), with co-benefits including significant health, safety and energy service delivery co-benefits through the delivery of improved quality housing to poor households (Tyler et al 2011). The SSF has yet to be implemented, and a funding proposal has been submitted to the German and UK NAMA

Facility. Unfortunately the application was not successful in the first round (BMU/DECC 2013), with no explanation publically available.

From reviewing the examples discussed, it is evident that a discrepancy exists between NAMAs in South Africa cited in the international literature and what is happening in the country. For example, the SARI is cited as a 'best practice example of a NAMA' in the Ecofys 2013 NAMA Database (Ecofys, 2013), and yet its status as a NAMA (and whether it even still exists) is unclear. This misreading by international sources could be attributed to various factors, such as a lack of first-hand engagement with the current South African context or the recycling of outdated information.

As this research paper will form the basis of a chapter that is part of comparative series on NAMAs in BASIC countries, only select activities that could feasibly in future be classified as NAMAs have been focused on. It should be recognised that exclusively adopting a NAMA lens does not provide an accurate reflection of the progress in mitigation activity being achieved on the ground in South Africa (Tyler et al 2013b).

4.2 Key existing areas of mitigation activity

Although the development of policies, plans and programmes considering mitigation opportunities for South Africa continues to evolve, the translation of these into action remains slow. In the key areas of renewable energy and energy efficiency, however, there is activity which has emerged domestically in parallel with the emergence and elaboration of the NAMA concept at an international level.

The REIPPPP was launched by the DoE in 2011. The Minister has determined that 3 725 MW to be generated from renewable energy sources is required to ensure the continued uninterrupted supply of electricity, a figure broadly in accordance with the capacity allocated to renewable energy generation in IRP 2010-2030 (www.ipprenewables.co.za). This government-led procurement programme aims to increase the share of renewable energy in the national grid by procuring energy from private independent power producers (IPPs). Moreover, in line with national economic transformation agendas, the government has aimed to design this programme to maximise the economic development potential for the country (Tait, Wlokas & Garside 2013) and ensure that broader socio-economic benefits are delivered to local communities (Wlokas, Boyd & Andolfi 2012).

As at November 2013 the total number of utility-scale renewable energy projects in progress is 64 (approximately 3916 MW), with many projects in advanced stages of construction and a handful already feeding into the grid (Energyblog.co.za 2013).

In terms of energy efficiency measures, the DTI is currently implementing the Manufacturing Competitiveness Enhancement Programme (MCEP) as one of the key action programmes of the Industrial Policy Action Plan (IPAP) 2012/13–2014/15. One of the sub-programmes of the MCEP is the provision of 'production incentive' grants; of which the 'Green Technology and Resource Efficiency Improvement Grant' could feasibly fund energy-efficiency measures; credits are calculated at up to 25% of manufacturing value added. The second sub-programme is the Industrial Financing Loan Facility, which is managed by the Industrial Development Corporation. Qualifying investment activities include specifically, 'green technology upgrades for cleaner production and resource efficiency activities' (DTI 2012).

South Africa also has a well-established Energy Efficiency and Demand Side Management (EEDSM) programme, administered by Eskom. The integrated DSM programme covers the commercial and residential sector considering more efficient technology options, behaviour change and improved processes. Also, national government has set a target to roll out one million solar water heaters in the country between 2009 and 2014. Achieving the goal of a million solar water heaters equals avoiding the need to generate 620MW of coal-based electricity, according to a DoE official (DBSA 2009). This initiative acts as an energy efficiency measure and simultaneously consumers can save between 30% and 50% of their electricity costs and contribute towards the reduction of South Africa's carbon emissions (Rennkamp 2012). A rebate is offered on high-pressure systems through the EEDSM.

In addition to these existing measures in key areas, there are currently two pilot programmes in the pipeline, and they will be explored in the next section.

4.3 Pilot programmes

South Africa's transport sector needs to be altered significantly, in order to align with the country's climate objectives. The National Climate Change Response White Paper outlines a Transport Near-term Priority Flagship Programme (see Figure 2), and the development of the Gautrain and MyCiti and Rea Vaya BRT systems in Cape Town and Johannesburg are indicators of progress on the ground.

As part of the a Zero Emission Electric Vehicle Pilot Programme overseen by the DTI, the DEA has demonstrated its intention to make a contribution to this flagship programme designed to improve the energy efficiency of the government vehicle fleet by 2020 by purchasing four Nissan Leaf vehicles from Nissan South Africa (Greve 2013). The programme aims to assess the viability of electric vehicles in South Africa, and the feasibility assessment is focused on determining their cost and on the job creation potential of establishing a local manufacturing industry for them. It is expected that other government departments will invest in electric vehicles once the feasibility has been tested by DEA. The DTI launched an 'Electric Vehicle Industry Roadmap' in 2013. The Roadmap identifies specific areas including investment support, developing a regulatory framework, infrastructure, tax incentives, and raising awareness (DTI 2013). There is no evidence yet that the electric vehicles programme will be packaged as a NAMA, even though it has been highlighted as such in the NAMA-space literature (see table in

Appendix).

The second pilot programme is in an earlier stage of development. It would fall under the 'Carbon capture and sequestration' Near-term Priority Flagship Programme under the leadership of the DoE. Interest in CCS stemmed from South Africa's Long Term Mitigation Scenarios, which identified it as a mitigation option. The South African Centre for Carbon Capture and Storage is developing a Roadmap for CCS, which is envisaged to consist of three phases: first, a pilot CO₂ injection project in 2016; should the test project prove feasible an upscaling of the project will follow; a larger-scale demonstration, and, finally, commercialisation of CCS in South Africa (Vincent et al 2013). The initial objective is to determine the geological storage potential, the existing legal framework for CCS, and potential funding streams. The Council for Geoscience and the Petroleum Agency of South Africa are involved in this study – a carbon tax would have implications for many sectors, and that has spurred interest in the potential of CCS (Vincent et al 2013). As part of the goal to establish whether and where geological storage is possible, the South African Storage Atlas is being developed. There is no specific legislation in South Africa to regulate CCS. There are, however, well developed waste disposal and environmental regulations, which would potentially have implications for how CCS could operate. As CO₂ is not viewed as a commodity that could be used for other purposes it would be treated as a waste product. The Waste Act of 1956 contained in the National Environmental Management Act, places the strictest regulations on hazardous waste, which is how CO₂ would be treated. In 2011 the government began developing the regulatory framework with 'CCS Policy Framework Development' (Vincent et al 2013).

The relevance of this project for NAMAs in South Africa relates to the financing of the proposed project. The project is investigating a combination of public, private, and climate finance. Given the potential contribution of CCS to mitigation, the potential of being packaged as a NAMA is highlighted as a financing mechanism that will be pursued (Vincent et al., 2013). Thus far the research has contributed to capacity building that would support such a project and the opportunities.

4.4 Development of NAMAs to submit to the UNFCCC

Like many other countries, South Africa has not formerly submitted NAMAs to the UNFCCC Registry, but there are existing initiatives led by South African institutions with the explicit intention to develop NAMAs to submit. As mentioned above, the NAMA term does not feature prominently in the domestic discourse of emission mitigation; so the existence of these two initiatives seems a little out of place at first glance. What is pertinent is that they are being co-driven by the relevant South African department and a European donor agency which provides both financial resources and human capacity. Whether this pairing has influenced the decision to package initiatives as NAMAs is open to conjecture; nevertheless, the arrangement does point to the ad-hoc nature of the NAMA-space in South Africa. Naming and definitional issues aside, both these initiatives are being developed within the context of two of the Near-term Priority Flagship Programmes outlined in the NCCRWP.

The DoE has engaged with the Department of Environment and the Department of Public Works to support the implementation of the energy efficiency and DSM Near-term Priority Flagship Programme (see Figure 2) within the context of the so-called vertical NAMA or V-NAMA (Govender 2013).

The V-NAMA programme will contribute to documenting the greenhouse gas emission reductions achieved through energy efficiency in public buildings; by establishing an MRV system across locations, this will contribute to reaching the 34% and 42% targets. The project has the possibility of being scaled up across South Africa (Beires & Zeller, 2013). Rough calculations based on the Eskom-provided emission factor of 1 (generation of 1MW produces 1ton of CO₂e) produce a per annum indicative figure of 100 000t CO₂ reduction through public building energy-efficiency measures that save 100GWh. The aim is to submit a V-NAMA proposal to the UNFCCC to seek international support by June 2014 and implementation from August 2014 (GIZ 2013).

In the transport sector, the development of NAMAs is being led by the Department of Transport (DoT), which is engaging with the TRANSfer project in order to develop concepts for transport NAMAs (<http://transferproject.org/index.php/countries/south-africa>). This initiative focuses on transport projects in Colombia, Chile and South Africa, aimed at reducing greenhouse gases. In South Africa, the work under the TRANSfer initiative is framed within the context of the Transport Near-term Priority Flagship Programme (see Figure 2) outlined in the NCCRWP, as well as the National Transport Master Plan (referred to as NATMAP 2050) and regional transport strategies (www.transferproject.org/index.php/countries/96-countries/157-policy-identification-south-africa). The process considers policy identification; measurement, reporting and verification; funding and support requirements; contribution to sustainable development; and issues pertaining to implementation challenges. Through stakeholder consultations throughout 2012 an identified NAMA which could be registered for recognition is the 'Passenger modal shift from road to rail', in the form of the Gautrain. The Gautrain is a rapid rail network that has been running between Johannesburg's OR Tambo Airport and the Johannesburg and Pretoria Metros since 2011. The Gautrain has been mooted as a potential NAMA, but questions arise regarding the direct positive impact on the poorest segments of the population and whether this existing project can claim developmental credits in terms of either job creation or poverty alleviation. It certainly meets the criterion of facilitating a modal shift for the wealthier, car-driving public to a less carbon-intensive public transport.

In addition to the V-NAMA and the potential Gautrain NAMA, state-civil society partnerships have also made two submissions for funding to the BMU/DECC NAMA facility, as distinct from the UNFCCC Registry. These were the (revised) SSF – led by the Department of Human Settlements with support and research provided by Cape Town-based sustainable development NGO, SouthSouthNorth – and the energy efficiency in public lighting programme (the V-NAMA programme above) championed by the Department of Energy. Unfortunately both submissions were unsuccessful in securing funding from the facility. (BMU/DECC, 2013).

5. Discussion and conclusion

This research paper set out to present a broad-brush overview of the further development of NAMAs in South Africa as it appears in late 2013 / early 2014, but it does not purport to be a mapping exercise of the type undertaken (but not yet publically available) by the South African government.

Internationally, South Africa has been seen by some as at the vanguard of conceptualising what developing countries' contributions to global emissions reductions might look. Interventions ranged from an early proposal of 'Sustainable Development-Policies and Measures' (DEAT, 2006) to the more recent proposals regarding the NAMA registry (for an overview see Coetzee and Winkler (2013)). While this has not translated into the adoption of the NAMA term at a domestic level, several internationally based writers have nevertheless continued to describe mitigation actions in terms of NAMAs. This may be due to a lack of familiarity with progress 'on the ground', or an assumption that developing countries would simply adopt the international terminology, or perhaps a donor-driven need to frame actions in a particular manner.

Domestically, the discourse about mitigation is framed by the National Climate Change Response White Paper of 2011, which itself seeks to relate to developmental policies in key sectors, such as energy and industry. The immediate priorities are reflected in Near-term Priority Flagship Programmes, with seven out of eight programmes addressing mitigation (and the other adaptation). In the medium term, the implementation of the policy includes definition of desired emissions reduction objectives, which may take a carbon-budget approach. The policy envisages a 'mix of measures' to ensure that sectors, sub-sectors and, in some cases, companies remain within their limits. As the measures are elaborated – work is being conducted in 2014 – more mitigation measures or NAMAs may emerge and get closer to implementation. The carbon tax could potentially be an effective mitigation measure, depending on the price, but this is yet to be seen due to the further delay of its implementation.

The NCCRWP aspires to facilitate integrated planning. Some progress has been made in relation to electricity planning (IRP 2010) and arguably the Industrial Policy Action Plan. The National Development Plan has spelled out a vision for 2030, including low-carbon development and various elements of energy. National policy priorities tend to be driven by developmental objectives, and so the degree to which climate is mainstreamed into development priorities is likely to be as important in the future of NAMAs as climate policy itself. Thus, when trying to get a picture of the mitigation efforts of the country it is essential not to be limited by the lack of utilisation of the NAMA term. In order to paint a more comprehensive – and markedly less orderly – picture of mitigation actions in South Africa than given in Figure 2, Figure 4 below is an attempt to capture the multiplicity of institutions, programmes and actions that occupy the NAMA-space. Despite the DEA's NCCRWP prescribed coordinating role (DEA 2011) the picture remains one of a largely uncoordinated mix of government departments, NGOs, the donor community, academe, and the private sector. And while two key programmes – the EEDSM programme and REIPPPP – have been operational for some time (as elaborated upon in section 4.2) and largely evolved out of a need to address South Africa's energy capacity needs, there is no mistaking their potential role in mitigation whatever their classification.

Figure 4 also highlights that the lack of formal, UNFCCC registry NAMAs is not reflective of the level of activity happening in the mitigation space. Furthermore, the review of international literature that refers to NAMAs in South Africa, compared with actual actions underway, demonstrates that there is a disjuncture between what is being reported internationally and the realities on the ground. There are also research activities underway, including the Mitigation Potential Analysis (https://www.environment.gov.za/nccrp_stakeholderworkshop), that are strengthening domestic capacity on understanding South Africa's approach towards mitigation in a more coordinated and systematic manner, but unfortunately these studies are not yet publicly available.

Looking to the future of mitigation actions in South Africa, there has already been some slippage in the timelines outlined in the NCCRWP. The desired emission reduction outcomes required of every sector within two years of the publication of the policy, for instance, have not been delivered to date (March 2014). It also remains to be seen whether the development of NAMAs currently being developed departmentally with donor assistance will be nationally embraced and submitted to the UNFCCC registry despite the absence of the term in the domestic discourse. For South Africa it is likely that the process of determining the flagship programmes under the national climate change policy will continue to shape the domestic NAMA-related discourse, whereas other drivers will continue to inform mitigation activities pursued nationally.

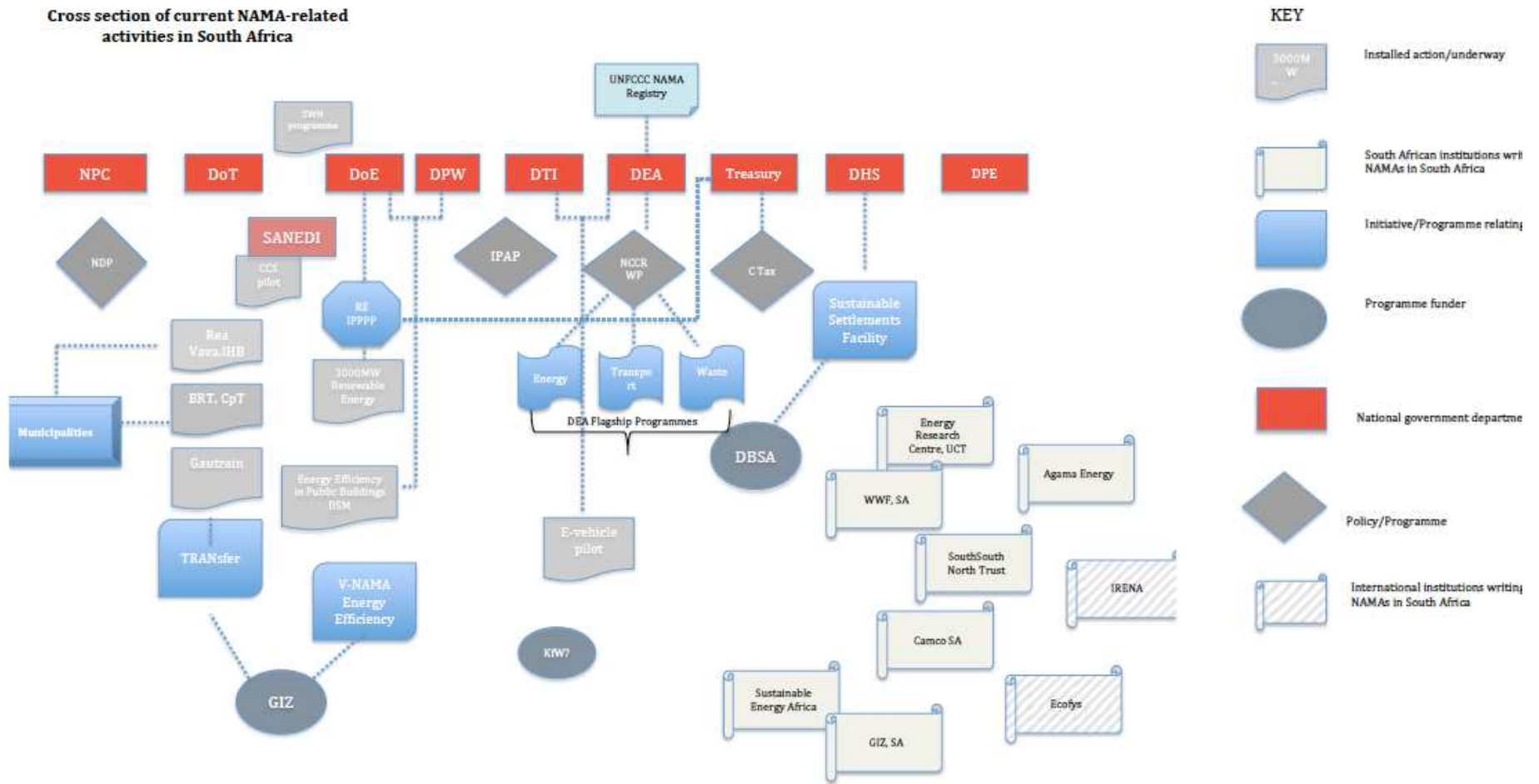


Figure 4: Mitigation activities in the NAMA-space in South Africa

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Appendix

<i>Action</i>	<i>Source</i>	<i>Organisation</i>	<i>Excerpt</i>	<i>Situation in SA</i>
South African Renewables Initiative (SARI)	Ecofys NAMA database IRENA Handbook NAMAs – from concept to opportunity – brief	Ecofys IRENA DLA Piper	'The South African Renewables Initiative aims to mobilise domestic and international funding, and sector expertise, to support South Africa to scale-up renewable energy.' SARI – 'The NAMA is based on an Integrated Resource Plan for Electricity and aims to support the scaling-up of RE in South Africa.'	The status of the SARI in South Africa is unclear, and appears to be no longer operational.
Rollout of electric private passenger vehicles	Ecofys NAMA database Presentation	Ecofys International Partnership on Mitigation and MRV – DEA?		Zero Emission Electric Vehicle Pilot Programme is being conducted by the DEA
Financing upgraded energy specifications of new low-income housing (SSF) Sustainable Settlements Facility (Formerly the NSSF)	Ecofys NAMA database Tyler et al (2011)	Ecofys South South North Development Bank of South Africa (DBSA) International Partnership on Mitigation and MRV – DEA? Energy Research Centre (ERC)/Mitigation Action Plans and Scenarios (MAPS)		The Sustainable Settlements Facility is aimed at upgrading low-income housing. It submitted an unsuccessful NAMA application to the Germany-UK NAMA Facility
Pilot CCS project CCS flagship programme	The proposed CO ₂ Test Injection Project in South Africa National Climate Change Response White Paper Presentation	The South Africa – Europe Cooperation in Carbon Capture and Storage (Vincent et al 2013) Department of Environmental Affairs (DEA) International Partnership on Mitigation and MRV – DEA?	'NAMAs are an emerging finance mechanism... which may allow for more developed countries or private entities to invest in developing countries'	The South African Centre for Carbon Capture and Storage has proposed the pilot CCS project. CCS is included as a flagship programme in the climate change white paper, and is also identified by the LTMS as a potential NAMA
Carbon Tax	South African Mitigation Action	MAPS/ERC Tyler et al 2011		An updated discussion document on the

Action	Source	Organisation	Excerpt	Situation in SA
	(SAMA) Paper			carbon tax was released in early 2013 by the National Treasury
Gautrain	South African Mitigation Action (SAMA) Paper TransFER Passenger Modal Shift: From Road to Rail – The Gautrain NAMA Case	MAPS/ERC Tyler et al (2011) GIZ Department of Transport, South Africa	'Gautrain was chosen as the most ready-to-go NAMA at a workshop held in SA with transport stakeholders based on a number of considerations.'	The Gautrain is operational, but not packaged or submitted as a NAMA Gautrain was chosen as the most ready-to-go NAMA at a workshop held in SA with transport stakeholders based on a number of considerations.
Cape Town BRT	South African Mitigation Action (SAMA) Paper	MAPS/ERC		The Cape Town BRT is operational and expanding, but not packaged as a NAMA to date
Energy efficiency in public buildings (V-NAMA)	KfW Energy Forum 2013	GIZ KfW (http://urbanleds.iei.org/index.php?id=127&tx_ttnews%5Btt_news%5D=39&chash=143ec085d97675c3d2c1914a606838fa)		DEA, DoE, DPW, working with GIZ to develop a V-NAMA for energy efficiency in public buildings
Policy flagships Water Conservation and Demand Management Renewable Energy Energy Efficiency and Energy Demand Management Transport Flagship Programme Waste Management Carbon Capture and Sequestration Adaptation Research Flagship Programme Potential NAMAs from LTMS Rollout of electric private passenger vehicles in South Africa Incremental funding of 10 GW of Wind Power up to 2020 Financing upgraded energy specifications of	Tracking Mitigation Actions in Africa – workshop presentation	International Partnership on Mitigation and MRV – DEA?		Although there has been progress with the flagships and potential NAMAs, only the SSF and Public Street Lighting initiative have been submitted as NAMAs to the Germany-UK NAMA Facility. There have been no submissions to the UNFCCC NAMA Registry. Neither of these applications for funding were successful.

<i>Action</i>	<i>Source</i>	<i>Organisation</i>	<i>Excerpt</i>	<i>Situation in SA</i>
new low-income housing Incremental funding of 5GW of CSP up to 2020 Carbon Capture and Storage (CCS) Renewable Feed-in Tariffs (REFIT) Demand Side Management (DSM)				