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WORKING PAPER

Mitigation action implementation

Towards an understanding of the variables that affect implementation of mitigation actions

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Developing countries exploring pathways to climate compatibility

Towards an understanding of the variables that affect implementation of mitigation actions

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ABSTRACT

One key focus of current climate discourse is the need to raise the level of ambition of collective emission reductions in order to protect the climate (UNEP, 2012). Any emission reductions outlined, however, remain hollow gestures unless translated into actions implemented on the ground. The implementation of mitigation actions (MAs) thus requires public policy interventions at domestic level. Due to the emerging nature of MAs there is at the time of writing (July 2013), no standardised approach to the implementation of mitigation policy in developing countries. This paper considers whether the implementation of MA policy in developing countries would be subject to similar impediments as other (non-mitigation related) public policy interventions. It focuses on case studies drawn from South Africa and Mitigation Action Plans and Scenarios (MAPS) projects in Brazil, Chile, Colombia and Peru. Based on previous desktop studies and interviews with MAPS researchers, several variables have been identified as having the potential to pose risks to the implementation of MAs. These include finance, technical capacity, vested interests, and social acceptance of the policies. This analysis proposes that MAs are more likely to be implemented if a range of possible impediments or risks to implementation are considered earlier in the planning and selection stages. In order to test this approach rigorously, more policies explicitly aimed at implementing MAs are needed, and more attempts at implementing MAs need to be made. This working paper forms a basis for further research that considers policy and implementation.

Keywords: implementation variables, mitigation actions, developing countries, policy intervention.

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1. INTRODUCTION

Mitigation actions (MAs) are currently a source of both academic and ‘on-the-ground’ interest, especially as they arise within the UNFCCC context as nationally appropriate mitigation actions (NAMAs).¹ Committing to action at the international level remains, however, an empty contribution to global mitigation efforts unless it is translated into domestic public policy interventions.

For the purposes of this paper we subscribe to the following definition of a MA: MAs might occupy a range from facilitative policies (e.g. the South African Renewables Initiative) through to the execution of the final project that is directly responsible for GHG mitigation (e.g. the Bokpoort CSP project in South Africa). To date (July 2013), our research has revealed few projects of the more concrete variety that have been expressly framed as MAs.

MAs, much like other public policy interventions, require a sequence of stages from identification, promulgation, planning and financing all the way through to operationalisation. In an earlier case study of South African mitigation actions (SAMAs) the authors suggested a series of variables to assess the likelihood of implementation for consideration at an earlier stage in the process (Tyler et al, 2011). Precisely how to consider these variables and incorporate them into the design process in order to move MAs closer to implementation remains unclear given the paucity of existing operationalised MAs. In addition, this paper focuses on developing countries, and therefore MA-related policy interventions take place within a contested policy space which also includes policies addressing a broad range of socio-economic issues. Thus it would be advantageous if, at the stage of their identification, policies intended to create or facilitate MAs were also designed to be ambitious in terms of both emission reductions and socio-economic objectives, thereby achieving multiple national objectives simultaneously.

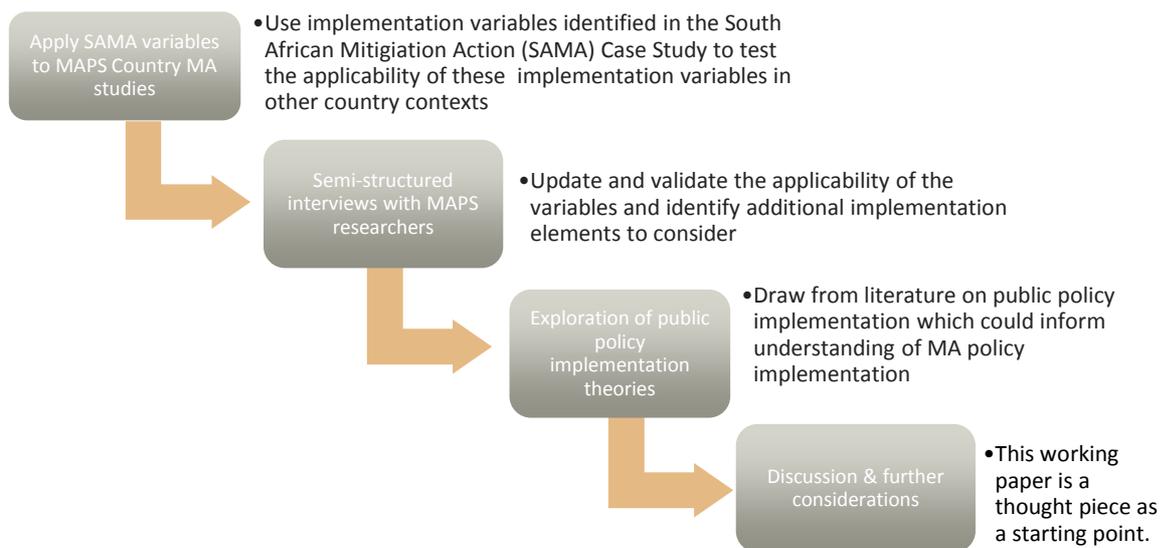
This working paper was conceived of as a result of interest in exploring avenues of thought around implementing mitigation actions in developing countries. This paper is the first output of an implementation work-stream and is intended as an initial thought piece.

¹ For discussions on the distinction between mitigation actions and NAMAs, refer to Tyler et al. (2013) and Tyler et al. (2012).

2. OUTLINE OF THE APPROACH

This paper gives consideration to the factors that might assist or hinder the implementation of MA policies. There are currently very few implemented and operationalised MAs, nor is there clarity on the precise definition of the term. With this in mind we opted to assess the traction of the variables identified in the South African country study (Tyler et al., 2011) when applied to the MAs identified in the Mitigation Action Country Studies produced under the auspices of the MAPS programme in 2011. To further our understanding of MAs we conducted several semi-structured interviews with MAPS researchers in order to gain indigenous insight into the challenges of implementation and the relevance of the SAMA variables to other countries. The results of these interviews have been woven into the discussion section of this paper. Given the paucity of implemented MAs we looked to peer-reviewed literature for a conceptual framework to contextualise the SAMA variables. Finding nothing explicitly about the implementation of mitigation actions – unsurprising given the nascent nature of the area – we reviewed the literature on more generic public policy implementation, based on the premise that MAs, as a type of public policy, might face similar challenges.

FIGURE 1: STRUCTURE OF THE RESEARCH PROCESS



3. APPLYING THE VARIABLES TO MAPS COUNTRY STUDIES

In 2011, Tyler et al conducted a study of four SAMAs: Cape Town's Bus Rapid Transit (BRT); a proposed carbon tax, the South African Renewables Initiative (SARi); and the National Sustainable Settlements Facility.² In assessing the likelihood of implementing these mitigation policies, the authors selected a series of questions (variables) the addressing of which, they concluded, would assist decision-makers in selecting and designing mitigation policy which could be implemented (see Table 1). Table 2 summarises the analysis of the above variables applied to MA country case studies from South Africa, Peru, Chile, Brazil and Colombia. Information is presented only where specific reference to a particular variable is made within the studies. Where there is no information (greyed cells), the subsequent interviews were used to validate that these are still important variables to consider despite currently having no illustrative examples to prove this.

TABLE 1: SAMA VARIABLE FOR IMPLEMENTATION

- A. *Is the MA aligned with national priorities?*
- B. *Is there a sufficient mandate to drive the MA?*
- C. *Is there relevant, existing institutional capacity to implement the MA?*
- D. *Is there a supportive planning, policy and regulatory context for the MA?*
- E. *Has a financial structure for the MA been developed?*
- F. *Is there local technical capacity to design the MA?*
- G. *Is there capacity to technically operationalise MA?*
- H. *Are there other, not-yet-captured risks to implementation?*

² This was conducted as part of the MAPS Programme's country study series. All the papers can be found on <http://www.mapsprogramme.org>.

TABLE 2: VARIABLES APPLIED TO MA COUNTRY CASE STUDIES

South Africa	Peru	Colombia	Chile	Brazil
A: Is the MA aligned with national priorities?				
Failing to align MA's with existing developmental priorities could hinder effective implementation				
The BRT in Cape Town highlighted the strength of aligning with non-climate related policies. For Cape Town, the 2010 FIFA World Cup provided the initial motivation and financing for the BRT.	Peru's criteria for selecting MAs essentially focus on the provision of clean and safe services to their citizens, which feeds into national objectives in sectors such as waste and transportation.	In the case of Bogota, the provision of public transport responds to the right of citizens to a healthy environment, by generating an organised, efficient and sustainable public transport system.	NAMAs in the Chilean energy sector are conceptualised to contribute towards government goals in the sector such as increased energy efficiency. There is therefore an additional impetus for implementing these NAMAs. Failure to implement energy efficiency measures in copper mining in 1992 is partially attributed to the fact that it was not aligned with existing national policy. This may be due to the fact that it was conceptualised by international consults. In 1999 the 'Removal of obstacles to electrification of rural areas using renewable energies' project was introduced (Sanhueza, 2011). It built on a successful existing rural electrification programme by applying for additional funding to cover the incremental costs of using renewable energy sources for the existing programme. The goals were achieved by 2000. A risk identified to the proposed Santiago BRT as a MA is the responsibility of the city's Department of Transport to provide accessible and affordable public transport rather than energy-efficient new technology.	
B: Is there sufficient mandate to drive the MA?				
Insufficient mandate and poorly defined ownership of a MA could be a risk to implementation depending on whether the MA has been proposed at a national level or is sector-driven.				
	A NAMA in efficient lighting has been developed because it aligned with the priorities of the Energy Efficiency Directorate of the Ministry of Energy and Mines and therefore had a stronger mandate.		Despite registering nationally approved NAMAs with the UNFCCC, formulation of the NAMAs remain incomplete until they are integrated into existing sector policies or regulations. This is a necessary condition for ensuring governmental ownership.	The Ministry of Agriculture takes the lead in the definition and implementation of agricultural MAs, but Brazilian development banks, as the primary source of credit to agricultural, forestry, and animal husbandry activities, would be potential owners of MAs, under the political coordination of the Ministry of Agriculture.
C: Is there relevant institutional capacity to implement the MA?				
Lack of institutional capacity e.g. resources, people				
		A challenge to implementing energy efficiency projects is the lack of an energy service company sector of any significance. Colombian commercial banks have no experience in financing energy efficiency measures either.		In the land use sector in Brazil, the institutional capacity to enforce MA laws and regulations is insufficient, particularly in the Amazon region, to cope with the economic drivers of deforestation.

South Africa	Peru	Colombia	Chile	Brazil
D. Is there a supportive planning, policy and regulatory context for the MA?				
Implementation of an MA requires a suitable enabling environment. It often seems more efficient to align new MAs with existing regulatory framework.				
	A MA focusing on energy efficiency has been proposed partly due to the existence of the necessary legal framework that supports energy efficiency programmes. Additionally, there is experience in the planning of a MA in this sector due to existing experience from an energy efficiency programme in the residential lighting sector.		An existing forestry law has been expanded and framed as a MA due to the resulting increase in carbon capture. The fact that the extension of the law will be considered as a MA, means that the Ministry of Forestry has had to incorporate additional elements in the law, mostly related to MRV, that would not have been considered otherwise.	MAs in the non-energy sectors are framed within sectoral mitigation plans as part of Government Decree 7390. The institution coordinating the MAs of the plans (CIMGC) differs to that which is responsible for the implementation of the MAs (FBMC). Inter-institutional tensions and different ways of working have posed a challenge to implementation.
E. Has a financial structure for the MA been developed?				
Without a proposed financial structure for an MA it is difficult to understand the cost implications of pursuing this action. Furthermore it is not possible to attract funding for the action.				
	Despite energy efficiency being one of the only sectors to have a policy which clearly addressed emissions reductions in the form of the Energy Efficiency Plan, this was not executed because a financial structure in support of the MA was not established. Broader financial barriers to implementation were a low energy price and high risks for large-scale investment due to lack of information.	MAs will be part of Colombia's Low Carbon Strategy. The inter-ministerial group overseeing the Strategy (National System for Climate: SNCC) is headed by a commission which itself is headed by the director of Risk Management Office of the Ministry of Finance. It is therefore likely, though at this stage unproven, that MAs would benefit from the leadership of the Ministry of Finance.	Chile includes proposals for the management of the financial resources required for implementation in their NAMA applications to the UNFCCC. In the transportation sector, MAs are being developed, but it is not yet clear how much public funding will be available for these and the focus has been on developing incentives for public sector participation.	
F. Is there local technical capacity to design the MA?				
Pursue an action that is realistic within the local skills set.				
	A history of quick government turnover has seen many necessary skills lost. As with many developing countries, it does not have the technical modelling capacity to design all of its MAs locally. However, technical capacity can be drawn from existing projects that employ transferable skills, such as the expertise used for Peru's Energy Efficiency Plan.		The forestry, energy and transportation sectors all have a basic technical capacity to develop MAs and have been able to contract support from third parties as needed. Brazil benefits from support in technical capacity to design MAs in the form of the Agriculture Research Enterprise.	
G. Is there local technical capacity to operationalize the MA?				
The BRT Cape Town was a pioneer project and therefore much of the operational aspects of running the BRT network such as vehicle operators, station management, a central control centre and fare management had to be contracted out (Tyler et al., 2011).			As part of their efforts to develop MAs, the Chilean energy, forestry and transportation sectors have all worked to identify what additional technical capacity would be needed for the implementation of their proposed actions. In all of the NAMAs currently being developed technical capacity building is included within the proposal. There are many requisite operational skills, including technical, legal and financial.	

4. DISCUSSION

Table 1 summarises the application of the SAMA implementation variables to country studies from Peru, Chile, Colombia and Brazil. This assists firstly in understanding to what extent issues around implementation are referred to and considered within the country studies. Secondly this process highlights in a more systematic manner some of the challenges specifically relating to the successful implementation of MA's. The following discussion is an exploration of the variables that are affecting the design of MAs, including variables not considered in Tyler et al. (2011).

The Tyler et al (2011) study highlighted a number of factors that appear to be constraining the implementation of mitigation actions in South Africa, including the availability of financing, vested interests, and a weakness of state institutions. Some of these can be addressed through international support, whilst others are inherently domestic issues which could possibly be countered by aligning mitigation actions with current areas of implementation strength within South Africa, focusing on non-climate drivers, and avoiding actions that straddle more than one government department. Since the research for the SAMA paper (Tyler, et.al.) was undertaken in 2011, the National Climate Change Response White Paper (NCCRWP) was introduced, which is the key framing policy for climate change mitigation and adaptation and should also increase coordination across government departments with regards to mitigation actions³.

For Brazil the variables B to G do not represent major barriers to the implementation of MAs. However, the issue of social acceptance remains a challenge in the energy sector. After the signing of the Copenhagen Accord, the Brazilian government did not contract further thermo power plants, focusing instead on hydropower supply. However, there is difficulty in overcoming social acceptance barriers related with local environmental and social impacts of the dams. Furthermore, an example in the AFOLU sector highlights the possible effect sustainable development objectives could have on the social reach of MAs. A regulation introduced in 2008 required that public loans to rural projects in the Amazon would only be extended by governmental agencies against presentation of proof of legal land ownership and compliance to environmental regulations.⁴ This has resulted in *fewer larger areas of deforestation* in certain areas where cattle farming is the predominant rural activity. However, certain small-scale family farmers were exempted from this regulation, the result of this being that there has been *an increase in the number of smaller areas of deforestation*. In the case of the waste sector MA, lack of relevant existing institutional capacity to implement (variable C) is an issue. Whereas in the industrial processes and productive uses (IPPU) sector, issues relating to local technical capacity to design and operationalise a MA (variables F & G) would pose a challenge to implementation.

The Chilean Ministry of Environment began actively developing NAMAs in 2010, by coordinating an inter-ministerial process to develop NAMA ideas with other relevant ministries. The Ministry of Environment developed an official template to collect proposals from the various ministries. The initial proposals have been further developed with national resources and international support, with the objective of overcoming any existing barriers (e.g. financial, technical, political) and eventually implementing the actions. To a certain extent, this template reflected the importance of many of the 'implementation variables' identified above, and in this way encouraged the development of NAMAs that had a higher likelihood of being implemented. For example, the template requested that ministries describe how the MA would align with any existing sectoral plans or regulations, the estimated cost of implementing the action, and if there was an MRV

³ The NAMA term is not found explicitly in the NCCRWP; however, mitigation actions are framed under "Near-term Priority Flagship Programmes" (DEA 2011: 30-32).

⁴ Regulation 3545 of the National Monetary Board enforced in 2008.

system contemplated for operationalisation. The issue of having a sufficient mandate to drive the MA was implicitly addressed by the nature of the high-level request between ministers. The Ministry of Environment is also identifying MAs that build on implemented or planned initiatives that will result in greenhouse gas reductions with that goal in mind. For example, energy efficiency and renewable energy projects have traditionally been driven by an energy security agenda; climate change concerns are new and not yet as influential in driving projects. This approach of framing MAs in the context of existing development objectives as opposed to climate-driven actions, could strengthen the likelihood of implementation.

Of the MAs being developed in Chile, there are three broad types, each with different implementation challenges. The first type is instituted in response to legal regulation. As implementation therefore occurs within a legal framework, any changes required to facilitate implementation necessitate legal and/or institutional change, which can be difficult to obtain. The second type of action is not a response to policy but rather an attempt to create a facilitative environment for private sector efforts. An example of this type of MA is the price stabilisation fund designed by the Division of Renewable Energy of the Ministry of Energy together with the Centre for Renewable Energy. It is designed to stabilise the selling price of energy in order to encourage private sector investment in renewable energy generation. This type may require international expertise as there is insufficient capacity locally. Chile's third type of MA is a publicly funded action that is not responding to a specific law, regulation or policy. Such is the case of the potential Green Zone in Santiago. In this instance the capital investment cost present a significant barrier to implementation.

Another barrier is conflicting or 'un-aligned' priorities across different ministries. Whereas the Ministry of Environment actively encouraged an electric vehicle initiative for its environmental benefits, the Ministry of Transport's primary concern was providing low-cost, reliable public transport to maintain voter support, irrespective of the potential benefits of reducing emissions or expanding into new technologies.

Colombia is in the process of identifying and articulating the nature and scale of the implementation challenges the country faces. Where MAs are identified by sectoral actors with sector-specific knowledge, the implementation challenges can be identified and capacity, where lacking, built. MAs identified through the Scenario Building Team meetings (part of the MAPS assisted in-country process) require a range of experts to determine the potential implementation hurdles. Whilst the researcher interviewed agreed that the SAMA variables were important, they pointed to the inherent subjectivity of the assessment of the more qualitative variables as a potential challenge. With this in mind the researcher suggested it might prove useful to develop guidelines or methodologies of how these variables may be assessed that would enable policy-makers to answer these questions in a cost-effective but structured manner. The Colombian researcher indicated that some of the following criteria were being considered in identifying and prioritising MAs: financial requirements, cultural practices, construction capacity, availability and penetration of technology, and sectoral prioritisation. Co-benefits are also a key element for prioritisation. The Colombian approach is to identify MAs that have high co-benefits and contribute to other national socio-economic and environmental priorities so that stakeholders and policy makers can be engaged more easily in its implementation.

The Peruvian researcher interviewed acknowledged the potential value of thinking through the variables at the time MAs were identified and highlighted that applicability of variables could vary considerably depending on the sector and geography (e.g. urban/Amazon). MAs arising from a dedicated mitigation policy were not seen as a likely development. Implementation was considered more likely if it was a non-climate driven action, particularly driven by economic or energy efficiency interests. An example of one such action thus far implemented would be the Public Buildings Energy Efficiency

Programme. This was driven by Ministry of Energy for purposes of financial savings. Cost-savings are measured, but there is no motivation to measure, report or verify emissions reductions as this is not seen as a MA and no baseline has been established. In this instance actions were aligned with national policies - just not with a mitigation policy.

With respect to policy design, the Peruvians have an advanced legal and regulatory environment (e.g. Energy Efficiency Strategy of 2000, National Climate Change Strategy), which could essentially support any action. In general, the main variables affecting implementation in Peru are lack of enforcement, lack of engagement with correct stakeholders (thus limiting social acceptance), geographically dictated constraints (e.g. urban/Amazon disparity) and capacity to MRV actions.

Argentina has only recently started collaborating on research within the MAPS programme and has therefore not completed a MA case study. The following preliminary thoughts on MA implementation in Argentina were highlighted by an in-country researcher. Implementation of MAs is likely to be subject to the same type of barriers as other infrastructural and or development projects, in particular a lack of financial and human resources. MAs might further be subject to the vagaries of government turnover, which would bring about realignment in government policy and reallocation of human and financial resources. It was suggested that lessons might be learnt from years of CDM implementation. In particular, the researcher highlighted the difficulties in creating coordination across ministries, getting approval for projects, and a lack of project finance. Furthermore, it would be likely that any public programme relying on the private sector for implementation would suffer from fluctuations in prices and conditions.

5. FURTHER CONSIDERATIONS

This process has demonstrated that the suggested SAMA variables can be applied to the other four country studies to provide insight into implementation challenges. It has also revealed two additional risks not captured by the previous variables: groups with vested interests, and a lack of social acceptance. The first emerged from the SAMA case study (Tyler et. al, 2011), the latter from the Latin American country studies and interviews with Latin American MAPS researchers. Groups with vested interests form a risk to implementing MAs to the extent that implementation is perceived to affect their livelihoods negatively. In the case of the Cape Town BRT, these groups included taxi drivers and owner associations. In Colombia, the potential expansion of rail and water freight options as a way to reduce truck freight related emissions was extremely unpopular with truckers who expected their businesses to be adversely affected. This was an impediment to implementation of this MA as the truckers are an organised, politically influential group. A further risk concerns the rapidity – or more often, the lack thereof – of administrative approval for policies. In countries like Peru, the slowness with which policies are approved hampers or even halts implementation.

An issue that arose clearly in relation to Brazil, and to a lesser extent Peru, was the social acceptance of the MA. Policy implementers might ask whether the MA would gain the requisite level of acceptance by society. In Brazil, social acceptance barriers are challenging the government’s proposed new hydropower plants due to the environmental and social impacts of the dams. Peru’s Energy Efficiency Plan was prioritised as an MA because it was considered to be a sector in which immediate action could be initiated. However, it faced significant challenges from a very weak culture of energy saving and also from the complexity of the interactions of stakeholder groups. The issue of social acceptance also pertains to ‘how’ implementation takes place – e.g. whether the relevant information reaches the right people.

6. PUBLIC POLICY IMPLEMENTATION LITERATURE

Having assessed in more depth the applicability of the implementation variables proposed in the SAMA paper to a sample of other developing countries, we turned our focus to academic literature on public policy implementation to find a conceptual framework to contextualise the SAMA variables. As mentioned in the introduction, we had to consider the literature on more generic public policy as there is as yet no specific literature on implemented MAs. This section presents some of the theoretical discourse relating to public policy implementation.

6.1 What is implementation?

There is still no widespread agreement among those who do implementation research about what actually constitutes a case of implementation. There is still some confusion over when implementation begins, when it ends, and how many types of implementation there are. (Goggin et al., 1990:9)

Unfortunately, in the two decades since Goggin, Bowman, Lester and O'Toole made that claim little seems to have changed in the field of implementation research. Certainly in the context of the study of implementation of MAs, this is still currently an appropriate claim.

This paper is necessarily focused on the implementation of MAs as a public policy with a specific focus – reducing carbon. Therefore, implementation is understood as meaning the promulgation of policy and the more tangible end-of-pipe outcomes such as the construction of turbines for a wind farm.

6.2 Evolution of public policy implementation research

Academic study of public policy implementation really gained momentum in the 1970s, particularly in the United States of America, and a little later in Europe. The main aim of this field of research has increasingly been to understand and explain the observed gap between policy-making and policy outcomes (Hill, 2009). Since the 1970s there have been three observable generations of research into public policy implementation. The first generation is frequently termed the 'classical' generation as it has its roots in classical public policy administration. The second is referred to as the 'empirical' generation owing to a turn to an emphatically empirical case-study methodology. This was followed by the 'analytical' third generation of implementation research.

The first generation of researchers started from an assumption that implementation would happen automatically upon the formulation of appropriate policy in a 'machine-like' manner premised on three concepts: organisational hierarchy, the discrete nature of politics and the administration thereof, and efficiency (Najam, 1995). This combination of assumption and focus frequently led researchers to either dismiss the field as irrelevant as implementation was assumed (DeLeon and DeLeon, 2002), or to draw pessimistic conclusions about the study of policy implementation as it was considered impossibly complex (Sabatier, 1986). The first generation primarily focused on the 'immense vale of troubles' that lay between the definition of a policy and its execution through case study analysis (DeLeon and DeLeon, 2002:469).

From the 1970s to mid-1980s the second generation of theorists (Pressman and Wildavsky, 1973; Berman, 1980; Mazmanian and Sabatier, 1983) sought to address the first generation by conducting meticulously researched case studies

and employing comparative methodologies (Najam, 1995). This generation was more consciously empirical and theoretical, proposing a series of hypotheses that implied a top-down, command and control orientation (DeLeon and DeLeon, 2002) as they attempted to draw out patterns and conceptual frameworks to create theory to explain success or failure of public policies.

The commonality between theorists of the first and second phase was their adoption of a top-down, centrally focused analytical approach. In other words, both generations began by analysing the policy (e.g. a statute) that legally mandated objectives and then assessed the extent to which these objectives were achieved in order to draw conclusions about implementation (Sabatier, 1986). The second generation, however, also saw the emergence of a bottom-up approach as an alternative analytical approach (Lipsky, 1971; Lipsky, 1980; Elmore, 1979; Hjern, 1982; Hjern and Hull, 1983). It gained momentum in the late 1970s and early 1980s in response to the perceived inability of the centrist, top-down approach to explain success or failure of policy implementation. Thus, rather than begin with a policy decision, this approach analysed the multitude of actors interacting at the operational level (most frequently local) of an issue. This bottom-up approach tended to undermine the traditionally accepted phases of policy formulation, implementation and post-evaluation reformulation in favour of a focus on the strategies employed by actors (Sabatier, 1986) and an emphasis on the importance of involvement of 'street-level bureaucrats' in the planning and execution of policy (DeLeon and DeLeon, 2002). An array of studies (Lipsky, 1971; Berman and McLaughlin, 1976; Hanf and Scharpf, 1978; Ingram, 1978; Elmore, 1979; Browning et al., 1981; Barrett and Fudge, 1981; Hjern and Hull, 1982;) demonstrated that "local actors often deflect centrally-mandated programs toward their own ends" (Sabatier, 1986).

In the third generation of implementation research the focus shifted away from individual cases of success or failure toward developing a general understanding of implementation and how this might be improved (Najam, 1995). In 1979 and 1980 two of the foremost researchers in this area, Paul Sabatier and Daniel Mazmanian, proposed a framework of six 'sufficient and generally necessary' variables for effective policy implementation. The first three dealt with the statutory level: having clear legal objectives (including a standard of evaluation and resources for implementation), being informed by a causal theory, and having a legal compliance structure in place. The last three conditions or variables of the framework were: having committed and skilful functionaries; garnering the support of interest groups and key parts of legislative and executive, and the stability of socio-economic conditions so as to not have the policy undermined.

Furthermore the third generation of researchers increasingly concluded that top-down and bottom-up analytical approaches both provided useful explanatory insights into implementation and that their respective strengths might be effectively used to understand different types or stages of implementation processes thereby side-stepping their respective weaknesses (Hanf, 1982; Sabatier, 1986; Najam, 1995). Despite these strides, a comprehensive, predictive 'theory of implementation' still evades researchers; however, this generation has achieved much implicit convergence on the idea of important 'clusters of variables' that can impact implementation (Najam, 1995; O'Toole, 1986). Adil Najam's useful 1995 synthesis of public policy implementation literature identified a trend of five variables that he deemed critical causal variables. These Najam dubbed the '5C protocol': Content, Context, Commitment, Capacity, Clients and Coalitions. The obvious place to start when considering the possibility of policy implementation would be the content of the policy itself, including its goals and methodology, and the institutional context through which a policy must pass. Next, the commitment and the capacity of those tasked with implementing must be assessed. Finally, Najam identified the importance of gaining the support of clients and coalitions of interested parties in order for policies to be implemented.

This survey of the public policy implementation literature thus revealed that the variables identified in the SAMA paper (and tested in the semi-structured interviews) show a marked degree of alignment with generic public policy research focussed on implementation as encapsulated in Sabatier's framework or Najam's '5C Protocol'. Thus whilst mitigation actions might be conceived of as a new policy field, there is still much to be gained from a thorough reading of the literature on public policy implementation.

7. CONCLUSION

This paper is a starting point from which to consider some of the challenges of implementation of mitigation actions in developing countries. Three key observations have emerged. Firstly, there is a dearth of public policy implementation literature relating specifically to MAs that could provide theoretical guidance to practitioners. Secondly, there are few MAs that have been implemented from which we could gain empirical guidance. Thirdly, the variables identified in the SAMA case study is a useful framework for comparing the experiences of other developing countries involved in the MAPS Programme. In some cases, such as Chile and Colombia, they are already incorporated into the decision-making process to some extent.

The variables identified in the SAMA paper show some alignment with the mainstream public policy implementation literature discussed above. It is, however, significantly harder to use the bottom-up analytical approach at this point as so few MA policies have been implemented in MAPS countries. Our approach therefore necessarily conformed to the top-down approach which focuses firstly on the government decision at central / national level. The BRT in Cape Town, however, is one example of a successfully implemented local action – albeit that emission mitigation was not a primary driver. The success points to the involvement and driving force being located at the local level. This observation is in keeping with the emphasis placed on local actors by the bottom-up approach.

This preliminary research has shown that there are certain general variables that could potentially hinder the effectiveness of implementation if not examined at the design phase. The implementation of every MA is unique, being defined by both national and local contexts. This raises methodological challenges; how is it possible to assess these variables quantitatively or qualitatively and to plan for trade-offs between cost, accuracy and subjectivity of this assessment? The application of the proposed variables would likely vary for unilateral MAs that are decided as a purely national effort, and those MAs that will be requiring international support, such as NAMAs, requiring further MRV considerations for example. However, the proposed implementation variables put forward in this paper provide some core elements, early consideration of which could increase the likelihood of mitigation projects being successfully implemented. Going forward we aim to draw lessons from MAPS processes beyond MAPS countries as this issue unfolds, which will hopefully add to better understanding of implementation challenges in the context of MAs and how these could be considered at early planning stages.

8. BIBLIOGRAPHY

- Cadena, A. and R. Rosales. (2011). Mitigation Action in Developing Countries: Country Study for Colombia. Mitigation Action Plans and Scenarios Programme (MAPS) Working Paper. Cape Town.
- DeLeon, P. and L. DeLeon (2002). 'What Ever Happened to Policy Implementation? An Alternative Approach.' *Journal of Public Administration Research and Theory*, 12(4): 467-492.
- Elmore, R.F. 1979-1980. 'Backward mapping: implementation research and policy decisions.' *Political Science Quarterly*, 94(4): 601-616.
- Goggin, M. L., A. O'M. Bowman, J.P. Lester and L. J. O'Toole Jnr. (1990) *Implementation Theory and Practice: Toward a Third Generation*. Glenview, Il. Scott, Foresman & Co.
- Hanf, K. (1982) 'Regulatory Structures: Enforcement as Implementation.' *European Journal of Political Research*, 10 (June):159-72
- Hill, M. (2009) *The Public Policy Process*. London: Pearson
- Mazmanian, D.A., Sabatier, P.A. (1983) *Implementation and Public Policy*. Dallas: Scott, Foresman and Company.
- Najam, A. (1995) *Learning from the Literature on Policy Implementation: A Synthesis Perspective*. IIASA Working Paper 95-6 1.Laxenburg Austria: International Institute for Applied Systems Analysis
- La Rovere, E.L. (2011). Mitigation Action in Developing Countries: Country Study for Brazil. Mitigation Action Plans and Scenarios Programme (MAPS) Working Paper. Cape Town.
- O'Toole, L.J. Jnr. (1986) 'Policy Recommendations for Multi-Actor Implementation: An Assessment of the Field'. *Journal of Public Policy*, 6(2): 181-210
- Postigo-Takahashi, T, P. Zevallos, M. P. CigaránTolmos (2011). Mitigation Action in Developing Countries: Country Study for Peru. Mitigation Action Plans and Scenarios Programme (MAPS) Working Paper. Cape Town.
- Pretorius, L. (2003). 'Six contributions to understanding 'gaps between policy and implementation': an overview and comments.' *Politeia*, 22(1): 6-21.
- Sabatier, Paul A. (1986) 'Top-Down and Bottom-Up Approaches to Implementation Research: a Critical Analysis and Suggested Synthesis'. *Journal of Public Policy*, 6(1): 21-48
- Sanhueza, E. J. (2011). Mitigation Action in Developing Countries: Country Study for Chile. Mitigation Action Plans and Scenarios Programme (MAPS) Working Paper. Cape Town.
- Sharp, E. B., D.M. Daley, M.S. Lynch. (2011) 'Understanding Local Adoption and Implementation of Climate Change Mitigation Policy', *Urban Affairs Review* 47(3): 433-457.
- Tyler, E., A.S. Boyd, K. Coetzee and H. Winkler. (2011). Mitigation Action in Developing Countries: Country Study for South Africa. Mitigation Action Plans and Scenarios Programme (MAPS) Working Paper. Cape Town.
- Tyler, E. Coetzee, K. Torres Gunfaus, M. Boyd, A. Winkler, H. (2012). Understanding the interface between LCDS, NAMAs and mitigation actions. Mitigation Action Plans and Scenarios Programme (MAPS) Brief. Cape Town.

Tyler, E. Boyd, A. Coetzee, K. Torres Gunfaus, M. Winkler, H. (2013). Developing country perspectives on 'mitigation actions', 'NAMAs', and 'LCDS'. *Climate Policy*. [Available online] <http://dx.doi.org/10.1080/14693062.2013.823334>. Accessed 26 August 2013.

United National Environment Programme (UNEP)(2012), *The Emissions Gap Report 2012*, , Nairobi: UNEP.

Winkler, H., N. Hoehne, et al. (2008). 'Methods for quantifying the benefits of sustainable development policies and measures (SD-PAMs),' *Climate Policy* 8(2): 119-134.