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Supranational organisations and cross-national policy convergence: the case of biosafety in southern Africa

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SUPRANATIONAL ORGANISATIONS AND CROSS-NATIONAL POLICY CONVERGENCE: the case of biosafety in southern Africa

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ABSTRACT

This thesis analyses existing and new impetus for cross-national regulatory systems for modern biotechnology sparked in southern Africa by the 2002/03 food aid crisis. The study examined the roles the African Union (AU), the New Partnership for Africa's Development (NEPAD) and the Southern African Development Community (SADC), who, together with other regional and international bodies have initiated processes to assist the 14-country SADC region towards cross-national similarity or convergence of biosafety systems. This case study research was guided by the three factor conceptualisation of Per Olof Busch and Helge Jorgens (2005), which proposes harmonisation, diffusion and coercive imposition as three distinct international mechanisms causing policy change and policy convergence.

Theoretical perspectives, data gathering and analysis approaches adopted an interdisciplinary and holistic approach in navigating the complex technological, regulatory and socio-political settings. Data was collected primarily using questionnaires, semi-structured interviews and document review throughout the study period, and *in-situ* observation of processes and organisational interactions during a three-month internship at NEPAD in the middle of 2007.

Different stakeholder understandings of convergence, and fluctuating motivations and fears regarding its emergence and implementation were observed. The processes towards a transnational framework were viewed as more important than the outputs thereof. Minimal, if any convergence had occurred in entire regulatory systems, or policies, while lower level targets such as policy scopes, objectives, institutional arrangements and regulations had converged to varying extents. The three SNOs had played different roles in this, singly or collectively, particularly via ideational and epistemic influence exerted through interplay between the three mechanisms proposed by Busch and Jorgens (2005), with diffusion of practices being most prominent.

Therefore, and as observed by other researchers, the three mechanisms were not mutually exclusive, and their effect on spread of policies depended a lot on contextual factors within organisations, sectors, countries and the region. The thesis introduces the notion of layered convergence as one feasible outcome of the cross-national processes.

ACKNOWLEDGEMENTS

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ABBREVIATIONS AND ACRONYMS

AATF	African Agricultural Technology Foundation
ABI	African Biosciences Initiative
ABSF	African Biotechnology Stakeholders' Forum
ACB	African Centre for Biosafety
ACODE	Advocates' Coalition for Environment and Development
ACTS	African Centre for Technology Studies
ADB	African Development Bank
AGOA	African Growth Opportunity Act
AI	Artificial Insemination
AMCOST	African Ministerial Council on Science and Technology
AML	African Model Law (for Safety in Biotechnology)
APB	African Panel on Biotechnology
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AU	African Union
BCH	Biosafety Clearing House
BIOEARN	Eastern African Research Network on Biotechnology and Biosafety
BNF	Biological Nitrogen Fixation
Bt	*Bacillus thuringiensis*
BTZ	Biotechnology Trust of Zimbabwe
CASP	Congress of African Scientists and Policymakers
CBD	Convention on Biological Diversity
COMESA	Common Market for Eastern and Southern Africa
CPA	Consolidated Plan of Action
CPB	Cartagena Protocol on Biosafety
CSOs	Civil Society Organisations
DGIS	Directorate General International Cooperation (of The Netherlands)
DRC	Democratic Republic of Congo
EAC	East African Community
ECOWAS	Economic Community of West African States
EPRs	Environmental Performance Reviews
ESRC	Economic and Social Research Council
EU	European Union

FANR	Food, Agriculture and Natural Resources (Unit of the SADC Secretariat)
FANRPAN	Food, Agriculture and Natural Resources Policy Analysis Network
FAO	Food and Agriculture Organization (of the United Nations)
FARA	Forum for Agricultural Research in Africa
GDP	Growth Domestic Product
GE	Genetic Engineering
GEF	Global Environment Facility
G8	Group of Eight (Industrialized Countries)
G(L)MOs	Genetically (Living) Modified Organisms
HRST	Human Resources Science and Technology (Dept of the AU Commission)
IFPRI	International Food Policy Research Institute
ISAAA	International Service for Acquisition of Agri-biotech Applications
ISNAR	International Service for National Agricultural Research
MD	Molecular Diagnostics
MDGs	Millennium Development Goals
NBF	National Biosafety Framework
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organisations
OAU	Organization of African Unity (now African Union)
OECD	Organization for Economic Cooperation and Development
OST	Office of Science and Technology (of NEPAD)
PBS	Programme for Biosafety Systems
RABESA	Regional Approach to Biosafety in Eastern and Southern Africa
RAEIN-Africa	Regional Agricultural and Environmental Initiatives Network Africa
RBFP	Regional Biosafety Focal Point
SA	South Africa
SACBB	SADC Advisory Committee for Biotechnology and Biosafety
SACCAR	Southern African Centre for Cooperation in Agricultural Research
SACU	Southern African Customs Union
SADC	Southern African Development Community
SARB	Southern African Regional Biosafety (Programme)
SNOs	Supranational Organizations
SPGRC	SADC Plant Genetic Resources Centre
SSA	Sub-Saharan Africa

STI	Science, Technology and Innovation
STS	Science and Technology Studies
TC	Tissue Culture
TRIPs	Trade-Related (aspects of) Intellectual Property Rights
UK	United Kingdom
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environmental Programme
USA	United States of America
USAID	United States Agency for International Development
WB	World Bank
WFP	World Food Programme
WHO	World Health Organisation

CHAPTER 1   INTRODUCTION

'How, for instance, was Malawi to move maize donated by the United States, and thus obtaining [genetically-modified] Bt-maize, through Tanzania in mid-2002 in the absence of complementary biosafety protocols in Tanzania and Malawi, and in the absence of associated testing machinery?' – (Steven Were Omamo and Klaus von Grebmer, 2005: 2)

1.0   Background

Arguably, there are few better ways of capturing the dilemma that faced countries of southern Africa during the food emergency of 2002/03 than the statement above. The food crisis captured the attention of stakeholders from both sides of the pro- and anti-genetic modification divide; which centre on the uncertainties around genetically modified foods particularly in the areas of trade, food safety and environmental safety; among other dimensions. In a statement issued on 27 August 2002, the United Nations acknowledged that;

'Concerns have been expressed in southern Africa about the unintentional introduction of GM maize varieties into the region as a result of plantings or spillage of whole kernel maize provided as food aid …' but further noted that *'Based on national information from a variety of sources and current scientific knowledge, FAO, WHO and WFP hold the view that the consumption of foods containing GMOs now being provided as food aid in southern Africa is not likely to present human health risk. Therefore, these foods may be eaten …'* before reiterating that … *'The ultimate responsibility and decision regarding the acceptance and distribution of food*

aid containing GMOs rests with the governments concerned, considering all the

factors outlined above' (United Nations, 2002)[1].

There could not have been a less enviable background for making these choices: a humanitarian crisis threatening the lives of nearly 13 million people and perennially weak regulatory and decision-making systems for biosafety. The contention by some anti-GM actors was that not enough was being done by donor countries to source food aid from non-GM sources, making it difficult to separate the food aid from the aggressive efforts by some countries to promote GM crops and foods in developing countries (Prendergast, 2004)[2]. As fate would have it, there was a repeat of these controversies in March 2004 following similar food deficits in Angola and Sudan's Darfur region and attendant food aid packages: leading to assertions by some anti-GM activists that:

'... the uncomfortable reality is that the plight of the hungry is used by the powerful to

justify trade domination; poor countries and their peoples are pawns in an unequal

global power game' (Mulvany, 2004)[3].

The above are but a few of the realities facing countries in southern Africa as they wrestle with the challenge of feeding their populations, among other dimensions, in the face of the contested benefits and risks presented by new technologies such as gene-based biotechnologies (Birner and Linacre, 2008). Indeed, like elsewhere in the world, African

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[1] UN statement on the use of GM foods as food aid in Southern Africa:
http://www.fao.org/english/newsroom/news/2002/8660-en.html
[2] In: GM food aid controversy erupts again in Africa: article by Kate Prendergast, June 6, 2004:
http://www.truthforce.info/?q=node/view/262
[3] In: The dumping ground: Africa and GM food aid: article by Patrick Mulvany, April 29, 2004:
http://www.organicconsumers.org/biod/africa050404.cfm

countries have engaged in the debate on the pros and cons of modern biotechnologies and products thereof for a greater part of the last two decades (Paarlberg, 2000). However, and for countries of the Southern African Development Community (SADC) region, the debate changed irreversibly and fundamentally in content and nature as a result of the challenges spawned by the food emergency of 2002/2003, which brought countries face-to-face with decision-making in the face of regulatory uncertainty and a humanitarian crisis. The dilemma revealed the limited preparedness within countries, and the region to deal with these challenges, belying the many years of individual and collective efforts to develop and implement effective regulatory systems. Meanwhile, the fact that there was no unanimity at sub-national, national and regional levels on the technology and how to regulate it added the proverbial spanners in an already congested works. More on these efforts, challenges and the broader issues on the technology will be given throughout this thesis.

Using this cross-national food security and technology challenge as a starting point, this thesis analyses the efforts for development of cross-national biosafety systems in the SADC, that were ignited or reinvigorated by this unprecedented challenge, looking specifically at the roles of supranational organizations, who, among other organizations, stepped up to the challenge of assisting countries develop and/or strengthen their systems.

1.1   The defining nature of the 2002/03 food crisis

Southern African countries have found themselves at the throes of food emergencies in the past, for example in 1991, when a severe drought, combined with inadequate human, infrastructural and organizational capacity in domestic markets to severely constrain food supplies leaving millions of people on the verge of starvation (Omamo and von Grebmer,

2005:2). The food emergency of 2002/03 had, by and large, the same cast of issues – drought, infrastructural, organizational and policy factors – BUT with an additional challenge – that the thousands of tonnes of food available to help cover the shortages were suspected to contain unspecified amounts of genetically modified (GM) maize. Uncertainties around food and environmental safety, regulatory preparedness, among other challenges, meant that some countries were unwilling to accept the food aid, with some governments going on record to choose starvation, rather than have their people consuming 'poisonous food' (e.g. Panos Report No.49, 2005:30). The challenges that this dilemma presented ranged from the grandiose and perennial challenges of putting in place regulatory and institutional arrangements to the mundane logistical hurdles of 'how to load grain into rail cars and trucks with minimal escape, how to cover the loaded cars and trucks and how long to allow the trucks to sit in given positions' (Omamo and von Grebmer, 2005:2). As exemplified by the quotations presented earlier, the scenario created tension at various levels, within countries, between countries, with food relief agencies and donors, among others, as countries of the region individually and collectively endeavoured to make the best decision under pressure from the food emergency and the uncertainty posed by the suspected GM-food (Moola and Munnik, 2007). At the policy level, the dilemma is attributed with having raised the political temperature around regulation of biotechnology, both within countries and at the cross-national level. At the national level for example, a number of decisions and measures had to put in place to guide decision-making, with some countries, e.g. Zimbabwe and Malawi, deciding to distribute only milled grain and Zambia refusing the grain outright (Mafa, 2004; Moola and Munnik, 2007). At the regional level, SADC agriculture ministers cited the lack of a harmonized regional position on GMOs as creating serious operational problems in the movement of food and non-food items, and recommended the formation of an advisory

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committee on biotechnology and biosafety to develop guidelines on this issue and the broader issues around biotechnology (SADC 2003). Meanwhile, SADC Heads of State in their August 2003 Summit in Maputo, Mozambique, set a deadline of December 2004 for all countries of the SADC region to put in place national biosafety systems (SADC, 2004).

While all this is happening, the key issues and realities for biosafety are that while there is a significant level of agreement on the potential risks associated with GM technology; for example environmental risks from gene flow to non-cultivated plants, agronomic risks from resistance problems in the GM crops and in weeds, co-existence challenges between fields of farmers using GM-crops and those not using them; among others – there is still considerable disagreement within and across countries regarding the importance of these risks and the scientific possibilities for adequately assessing and addressing them (Birner and Linacre, 2008). Add to these the disagreements on the so-called non-science issues, such as labelling of food and feed derived from GM crops, and socio-economic issues around the technology, one then begins to understand the emergence of a continuum of regulatory systems, ranging from the 'stringent' EU system on one end to the 'permissive' US system on the other end (Levidow *et al,* 1996, Paarlberg, 2000). As noted by Arcuri (2001), a 'regulatory divide' has emerged, championed by 'technocrats' on one hand, who believe in a rational application of the science to identify and manage the risks; and a 'deliberative' philosophy on the other hand, which embeds scientific knowledge within policy and societal debates (cf. Birner and Linacre, 2008). These divides also exist in the SADC region, and how they militate against or cultivate fertile grounds for cooperation were among the key areas of focus for this research.

This research endeavoured to explore and investigate existing and new regulatory responses to the above and bigger challenges presented by modern biotechnology, in particular looking at the challenge of cross-national cooperation. As alluded to, one of the responses to the cross-national regulatory challenge which has dominated policy agendas in the region for a long time, and with more prominence after the food emergency, is that of harmonisation of national regulatory systems. Harmonisation is touted by its promoters as one way in which countries can leverage weaker national and sub-national regulatory capacities, and develop synergies that will place them in a strong position to deal with the dynamic challenges presented by the technology. Admittedly, and as will be detailed throughout this thesis, a number of organizations and programmes have entered the policy arena, to champion the harmonisation agenda directly, or to tackle other levels within the policy/regulation development spectrum. This study focused on the roles of three supranational organizations (SNOs), and elected to look at the desire for cross-national cooperation in biotechnology management from the broader perspective of policy convergence, with harmonisation being but one of these mechanisms towards the collective responses to the collective challenge. Further details on these issues are presented throughout the thesis, starting with the upcoming section on why the three supranational organizations were chosen, and some details on the broader issues around biotechnology and biosafety in the study region.

1.2   The three supranational organizations and the cross-national challenge

The scenario presented above is only a tip of the iceberg as far as processes for regulating biotechnology at various levels in Sub-Saharan Africa broadly are concerned. There are wider technology development and regulation issues that the countries have grappled with for a long time, and as would be conceivable, the supranational organizations are only one subset

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of a multitude of actors playing different roles in the issue area. This research is an empirical study into the roles of three SNOs; the African Union (AU), New Partnership for Africa's Development (NEPAD) and Southern African Development Community (SADC), in the development of cross-national policy, regulatory and administrative systems for managing modern biotechnology in southern Africa, with a special focus on agricultural biotechnology. The three organizations, together with a wide range of other national, regional and international bodies and programmes, have all initiated measures and processes to assist countries in the SADC region to work together in the development and implementation of biosafety systems[4]. It is emphasized in these organizations' programmes and by proponents of convergence, that having similar systems for managing modern biotechnology will ensure that inter-country collaboration, resource-sharing, experience sharing and other collective efforts will reduce many policy and regulatory hurdles and assist countries meet global and regional obligations, including having adequate regulatory preparedness to deal with challenges such as the 2002/03 food crisis (see tables 1 and 2). It is however important to note at this stage that, as with the broader technological and regulatory issues around biotechnology, the desire for convergence was not an uncontested issue, and hence in seeking to understand the feasibility of this policy agenda, the study investigated the motivations and fears around this issue. In addition, given the different levels at which the countries in the 14-member regional economic grouping are utilizing the technology, and therefore the different levels and forms of biosafety challenges that they face, and in light of many issues impacting on the biosafety issue area, this research was conceived with the objective of

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[4] In this study, a national biosafety framework or system is defined as "a combination of policy, legal, administrative and technical instruments that are developed to ensure an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health" (ref; UNEP-GEF, 2006)

understanding how the three organizations were assisting regulators in the countries and the region towards convergence, and also to understand the extent to which this convergence has been or would be achieved. The study was embarked on also with the motivation to garner empirical evidence from Africa in the growing field of cross-national policy convergence, especially looking at the role of supranational organizations. Policy convergence research is admitted to be still falling short of being a global research agenda mainly because empirical evidence from Africa is largely missing from the fray (Heichel *et al*, 2005). On the other hand, the focus on biotechnology/biosafety is a crucial one as many countries the world over are grappling with how to effectively harness and utilize the technology (Somsen, 2007:20; Russell and Vogler, 2000:10), and for the SADC region, a repeat of the 2002/03 quandary was described by some policy actors as 'not an option'. Meanwhile, for Africa in particular, though contested, biotechnology interventions are seen as a necessary addition to the battery of possible solutions to the challenge of solving the problem of perennial food insecurity in many parts of the continent (Blackie, 2000). Thus an in-depth understanding of how the technology can be managed at a multi-country level is crucial to gain fuller understanding of the issues. It was also recognized that while there had been many efforts towards getting countries to cooperate at regional level in regulation development and implementation of biosafety systems (see Timeline in Table 3) these efforts had not been studied from an academic standpoint, and this study aimed to contribute towards filling that gap.

Studies in the European Union (EU), United States of America (USA), Asia, elsewhere in Africa and other parts of the world regarding the regulation of genetically modified (GM) foods have shown that different societies answer identical problems in different ways (see for example Levidow, 2006; Murphy *et al*, 2006; Murphy and Yanacopulos, 2005; Odame *et al*,

2003; Newell, 2003), and that the socio-political context matters a great deal in this regard (Somsen, 2007: 21; Scoones, 2002 & 2005). As revealed in relation to the food aid controversy, much of the debate and controversy around GM foods and other products of modern biotechnology concern the regulation of risk, and given that risk is socially constructed, this research aimed to explore how different forces and interests were coming together towards some form of transnational governance framework, under the influence of the SNOs.

1.3   Research question

One observation from the policy debates on harmonisation was that while there was increasing interest in harmonisation and the cross-national collaboration in management of biotechnology broadly, there was limited theoretical and empirical evidence on the type of regional collaboration that was preferred (cf. Paarlberg, 2006; Birner and Linacre, 2008). Admittedly, there were different forms that this collaboration could take, and this research set out to shed some light into an understanding of these issues based on the region-specific context of the SADC. The over-arching question for this research was: *whether, how and to what extent have the three supranational bodies (SADC, NEPAD and AU) contributed to cross-national convergence of biosafety regulatory systems in the SADC region?*

Among other targets, the research also hoped to fulfil the following:

- To contribute to knowledge and understanding of how ideas spread across nations and the extent to which national factors influence and refract cross-national pressures.
- To contribute to understanding and analysis of institutional and policy adjustment at national level, and the ways in which SNOs assist and influence these processes.

- To contribute to wider theoretical and empirical debates on regional integration in Africa and beyond.

- To contribute to analytical models of policy convergence through application and interrogation of the typology proposed by Busch and Jorgens (2005) [to be introduced in section 1.5].

The research started from the premise that the biosafety systems in the countries were divergent and that the divergence was inherent in the technology, the regulatory systems and the processes around these. It was also hypothesised that the causes of this divergence could be identified and isolated as a way towards identifying the conditions under which convergence might occur with influence from the three SNOs. As with the convergence hypothesis (Tinbergen, 1961), this research also started with the assumption that all the different systems in the countries had good and bad features, and the desire for countries was to improve on where they were weak through adopting innovations from abroad. A further assumption was that the three SNOs, among other players, were trying, through promoting rational learning practices, to assist countries tap the best lessons, in the face of a myriad of facilitating and hindering factors, which the research also sought to unravel.

The research question was crafted to be able to elicit both qualitative and quantitative responses: **whether and to what extent** (which sought evidence for convergence – both qualitative and quantitative, looking at the specific aspect of a biosafety system under consideration); **how** (which referred to the mechanisms in operation within the typology used – also based on both qualitative and quantitative). These issues are discussed further throughout the thesis.

The question also reveals that this study was focusing on the three supranational organisations with a specific interest in how the convergence process was taking place under their influence. While the SNOs were acting as an organising force, the convergence issue was constructed in particular ways within the countries and the region as a result of this mediation. There was prior recognition that the influence of the three organisations emanated from the many powers that they brought to the policy arena, which included political clout, financial and technical resources, economies of scale, among others (see Box 4).

1.4   Key theme of the research

The key theme of this research is convergence, which is premised on growth in similarity of policies, policy scope, institutional and implementation arrangements, among others. The research design was based on the different conceptions of similarity, how it occurs and how to measure it. There was a constructivist perspective that similarity had indeed emerged or appreciable strides towards it had been made, and the task was to measure it, or gather different views on how far it had emerged, and how the three SNOs had contributed to its emergence. An open-ended strategy grounded in participants' accounts, document reviews and observations and underpinned by theory on key issues around policy convergence was used.

This research drew inspiration from other studies and published works on cross-national policy convergence, and on multi-actor interactions broadly [for example Busch and Jorgens (2005); Dolowitz and Marsh (2005); Seeliger (1996); Holzinger, *et al*, (2006); Franzese and Mosher (2002) and Gauthier (2002); to name a few]. The cross-cutting, multi-level and multi-actor nature of biotechnology and biosafety issues, combined with the cross-national

level at which the issue was being investigated, meant that a number of conceptual and theoretical perspectives would come to the fore in trying to understand this issue. The research was about how countries are attempting to manage risk at a multi-country level, and about how they are endeavouring to be innovative within the different pressures they face as individual countries and as a collective entity. The desire was to try and understand how the differences on many fronts around this issue within the countries were serving as a rallying point for the desired transnational governance arrangement, with the mediation of three supranational bodies, themselves employing different means to get to the desired end.

The main focus of most studies on policy convergence is on policy output, i.e. the policies adopted by the countries, as opposed to the policy outcome. Policy outcomes are usually affected by many intervening variables, which make it difficult if not impossible to relate the outcomes directly to the causal mechanisms of convergence. Therefore it would not be surprising to find convergence at the level of output, but divergence at the outcomes level. This was borne in mind as the research unfolded.

With respect to research hypotheses, many authors are in agreement that formulating hypotheses on the level of convergence is a difficult task because identifying the level or 'point' of a policy to then come up with a convergence point is not always easy (Holzinger and Knill, 2005a). Convergence implies decrease in variation among policies over time, and the unit of measurement is thus the decrease in standard deviation from one point in time to another. A change in the regulatory level means a shift either downwards or upwards of the mean between the two measurement times (Botcheva and Martin, 2001). Therefore to assess convergence, and a shift in the regulations, a reference point is needed. In this study the commencement time reference point was 2002, at which point it is assumed the convergence

mechanisms championed by the three organizations were only beginning to take root, and the systems in the countries were characterized by extensive diversity. The study covered a 6-year period up to 2007. In this period the three organizations were most active, and due to the intensity of discussion of biosafety issues at national, regional and international levels, measurable convergence was expected.

In addition to setting reference frames for the measurement of convergence, researchers are in general agreement that measurement of convergence is removed from the coincidence domain if observation of the phenomenon is made in a large sample of countries (Leifferink and Jordan, 2002). There is a possibility for changes to run parallel in two countries with different national sources of change. This was the motivation for looking at the 14-country SADC region, as opposed to comparing only a few countries in the same region. In addition, national policy is also admittedly a multifaceted concept, and clarity was needed well in advance regarding where the convergence would be examined. Use of the Busch and Jorgens conceptualisation and other writings from mainstream literature on convergence in investigating the convergence effects of the three organizations also helped to make the dependent variable more tractable.

1.5 Theoretical framework for this study

It was recognized from the start of the research that because of their multiplicity and ever-changing nature, a single framework could not adequately explain the approaches and mechanisms being employed by the three organizations. In addition, given the pervasive nature of the technology and policy arena being looked at, assuming a narrow framework approach was deemed to be less fruitful in bringing out and explaining the issues around the

study topic. A broad and integrative framework was preferred, hence the study interrogated the utility of the three-factor typology proposed by Busch and Jorgens (2005). The three broad mechanisms proposed are discussed further in the literature review (Chapter 3). Briefly they are: (1) cooperative harmonisation of domestic practices by means of international legal instruments or supranational law; (2) the coercive imposition of policy practices by means of economic or political conditionalities and (3) the interdependent but uncoordinated diffusion of practices by means of cross-national imitation, emulation or learning. This model is recognised as one of the more systematic typologies of possible mechanisms of convergence (Weibust, 2007; Lehtonen, 2006). More detailed information on each of the mechanisms and the model will be provided and discussed in Chapter 3.

This study looked at the technological and policy context of southern Africa, with an interest in the institutional responses spearheaded by the three supranational organisations in creating a transnational governance framework for biosafety. Two conceptualisations of convergence were observed among stakeholders from commencement of the research, convergence as it relates to having a framework to be implemented at regional level, and as it relates to having similar systems that will be implemented independently by the countries. Towards understanding these, and guided by the three-factor typology proposed by Busch and Jorgens, this study investigated the existence of and interplay between harmonisation, coercive imposition and diffusion of policy practices in the region as a result of the efforts of the three organisations. This was all done in full appreciation of how policy processes in the individual countries differed at various levels, including but not limited to policy entrepreneurship, issue expansion and venue shopping, i.e., the different sources of policy ideas for policy actors (cf. Schattschneider, 1960: 56). Further elucidation of how these different national level factors

affected the feasibility and extent of convergence was also investigated by this study, though to a limited extent.

Much of the literature on policy convergence focuses on availing evidence for policy convergence, and the limited understanding of the mechanisms which cause convergence has been highlighted by many authors (Dolowitz and Marsh 2000; Holzinger and Knill 2005b; Drezner 2001; Bennett, 1991, among others). For this research, the limited research on convergence in the area of biotechnology policy in Sub-Saharan Africa made demonstration of convergence a logical starting point. The study further explored and sought to explain the mechanisms and facilitating factors for convergence, drawing on the systematic conceptualisation of three analytically distinct classes of mechanisms through which international processes, actors and institutions contribute to domestic policy change and cross-national policy convergence proposed by Busch and Jorgens (2005).

1.6   Structure of the thesis

With this introduction and background to the research, the rest of the thesis continues as follows: **chapter 2** gives details on the broader biotechnology and biosafety terrain of the SADC region, further revealing the context within which the transnational cooperation is being championed by the SNOs and other players; **chapter 3** gives the theoretical issues around this research, through taking an in-depth look at cross-national policy convergence, and other theoretical perspectives impacting on the research. **Chapter 4** details the data collection, analysis and interpretation methodologies used, as influenced by the theoretical perspectives and the research objectives. **Chapter 5** highlights the setting or context in which the research was undertaken; starting in the first section with an analysis of the challenges

and realities presented by the regional context, and in the second part looking at the organisational and technological context. This chapter serves the dual function of expanding background information and availing empirical data from the research. **Chapters 6, 7 and 8** comprise the findings from the research; starting with stakeholder narrations on convergence **(chapter 6)**, followed by an unbundling of the narrations, first looking at the multiple understandings of convergence **(chapter 7)** and secondly looking at the motivations behind the narrations and the understandings **(chapter 8)**.   Finally, **Chapter 9** analyses and discusses the results based on the Busch and Jorgens typology, relating the research question to the various theoretical perspectives, the research findings and the realities of the context. The chapter ends with some conclusions of the research and its implications and recommendations for further research.

CHAPTER 2:TECHNOLOGY AND POLICY SCENARIO IN THE SADC – BEYOND THE FOOD CRISIS

'If chemistry and physics underwrote state power through the twentieth century's two great conflagrations, it now seems biology's turn to define new roles for the government' (Jasanoff, 2005: 36).

2.0   Introduction

The preceding chapter has presented the problem tackled by this thesis within the context of the regulatory and technological challenge emanating primarily from the food emergency challenge which the region faced in 2002/03. However, and as alluded to earlier, the quandary faced by the countries belied the many years and resources invested in efforts to develop the technology and systems for managing it, at a time when various forms of biological sciences are taking centre stage in national development agendas the world over. This chapter presents an overview of some of the technology development and regulation efforts taking place within individual SADC countries and at the regional level. Within the bigger focus of the research, this chapter brings to the fore some of the sources of motivation, strength, weakness and opportunities for the countries in their participation in a transnational regulatory framework, and for the SNOs as they facilitate spread of policy innovations across the national boundaries.

2.1   Biotechnology

Biotechnology, defined[5] broadly as the use of living organisms or parts thereof in the production of goods and services, has revolutionized many human endeavours that rely on biological processes. Activities in agriculture, health, environment and industry have had a radical facelift as a result of developments in biotechnology. These developments have

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[5] See Convention on Biological Diversity (www.cbd.int)

brought together advances in disciplines such as engineering, chemistry and biology, to hasten processes, and to enable the development of processes and products that were not imaginable before the advent of these technologies.

Southern African countries are employing various levels of biotechnology (see Table 1 below) in a wide range of fields, which include agriculture, environment management, forestry, health care and industry. The potential of the technology to deal with some of the challenges facing the countries has been documented in national development strategies, especially agricultural, science and technology and industrial policies, and some steps have been taken towards harnessing the technology (e.g. SA Biotechnology Strategy, 2002[6]; Zambia Biotechnology Strategy, 2004[7] and Zimbabwe Biotechnology Policy, 2006[8]). Table 1 below gives a summary of the biotechnologies being used in the different SADC countries, especially in agriculture, and the levels of progress towards putting in place policy and regulatory systems:

Table 1: Levels of use of biotechnology and status of development of biosafety systems in SADC countries (as of June 2008)

Country	Level of use of biotechnology	Status of development of Biosafety Systems	Ratification of CBD & Cartagena Protocol	Key current Requirements
Angola	Mainly traditional techniques, e.g. tissue culture (TC), fermentation and biological nitrogen fixation (BNF). No genetic engineering (GE) research, trials, or commercial	There is no biosafety policy or legislation But there is a Ministerial Decree on importation of GMOs (since 2004)	Ratified both the Convention on Biological Diversity (CBD) and Cartagena Protocol on Biosafety Participates in the UNEP-GEF Project	Development of policy and regulations Capacity building – legal, infrastructural and technical Public awareness

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[6] http://www.pub.ac.za/resources/docs/biotechstrategy_2002.pdf
[7] See Mulenga (2006).
[8] See Mafa (2004)

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	releases			
Botswana	TC, BNF, artificial insemination (AI), molecular diagnostics (MD) and fermentation. No GE research, trials or commercial releases	There is no biosafety policy or legislation in the country; but there is a 2004 Cabinet Memo, which stipulates obligations for declaration of GMO imports. A draft national biosafety framework initiated in 2002 with UNEP/GEF funding still being finalised	Ratified both the CBD and Cartagena Protocol, Participates in the UNEP-GEF Project	Development of policy and regulations Capacity-building – legal, technical and infrastructural Public awareness
Democratic Republic of Congo	Mainly TC and BNF. No GE research, trials or commercial releases	Draft biosafety regulations in place (2005). No policy as yet	Is Party to both the CBD and the CPB. Participates in the ASARECA programme	Finalisation of regulations; development of policy and strengthening of overall technical and regulatory capacity.
Lesotho	TC, MD and BNF. No GE research, trials or commercial releases	There is no biosafety policy or legislation, but a Multisectoral Task Force was set up to develop a national biotechnology and biosafety policy and legislation	Ratified both the CBD and Cartagena Protocol, Participates in the UNEP-GEF Project	Development of policy and regulations Capacity-building – legal, technical and infrastructural Public awareness
Madagascar	TC, AI, BNF and fermentation. No GE research, trials or commercial releases	Has a draft biosafety policy and legislation	Ratified both the CBD and Cartagena Protocol, Participating in the UNEP-GEF Project	Development of policy and regulations Policy and legal capacity building Public awareness
Malawi	TC, fermentation, AI, MD and BNF. Limited GE research in agriculture and forestry. Has carried out field trials of Bt-maize and cotton	Has legislation on Biosafety (2004) and a National Biotechnology Policy which was approved in July 2008[9].	Ratified both the CBD and Cartagena Protocol, Participates in the UNEP-GEF Project	Finalisation of policy, and aligning regulations to the Protocol Public awareness and participation
Mauritius	TC, MD, BNF and fermentation. GE research on potato and sugar cane and contained trials on-going.	Has no biosafety policy but the Genetically Modified Organisms Bill (No. 44 of 2003) was passed into law in March 2004	Ratified both the CBD and Cartagena Protocol, Participates in the UNEP-GEF Project	Policy development and aligning regulations to the Protocol Public awareness and participation
Mozambique	TC, MD and BNF. No GE research, trials or commercial	Has no biosafety policy nor legislation, but set up in 2004 a National	Ratified both the CBD and Cartagena Protocol,	Expediting development of policy and

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[9] ISAAA Crop Biotech Update (18 July 2008)

	releases	Biosafety Working Group to develop a policy and legislation	Participates in the UNEP-GEF Project	regulations Legal, technical and infrastructural capacity building Public awareness
Namibia	TC, fermentation, AI and MD. Has a GMO-testing laboratory. No trials or releases	Has a Biotechnology and Biosafety Policy passed in 1999 but does not have regulations	Ratified both the CBD and Cartagena Protocol, Participates in the UNEP-GEF Project	Expediting development of regulations Capacity building – technical, legal and infrastructural Public awareness
South Africa	Active research and commercial use of most biotech techniques, including trials and releases of GE cotton, soya and maize	Has had a biosafety framework, the GMO Act, since 1997, which has been undergoing review since 2004	Ratified both the CBD and Cartagena Protocol, Participates in the UNEP-GEF Project	Expediting review of legislation to align it with the Protocol Public awareness and participation in decision making on biosafety
Swaziland	TC, AI, MD and BNF. No GE research, trials or commercials	Has had a Biosafety Committee since 2001. Has a draft Biosafety Policy and a draft Biosafety Bill	Ratified both the CBD and acceded to Protocol, Participates in the UNEP-GEF Project	Completing policy and regulations Technical, legal and infrastructural capacity building Public awareness and participation
Tanzania	TC, AI, BNF and MD. Limited GE research. Trials of Bt cotton and maize conducted in 2004	There is a 2nd draft Policy and 1st draft Biosafety Bill	Ratified both the CBD and Cartagena Protocol, Participates in the UNEP-GEF Project	Implementation of policy and legal arrangements Legal, technical and infrastructural capacity building Public awareness and participation
Zambia	TC, AI, BNF, MD and fermentation. GE research on cassava on-going. Also trials for Bt-cotton, and maize conducted	Has Biosafety Regulations (2007) and a National Biotechnology and Biosafety Policy (2004)	Ratified both the CBD and Cartagena Protocol, Participates in the UNEP-GEF Project	Aligning regulatory system to Cartagena Protocol Capacity-building – legal, technical and infrastructural Public awareness and participation
Zimbabwe	Has active research programmes in all major techniques, including trials of GE maize and cotton	Has had Biosafety Regulations since 1998, and a Biotechnology Policy (2005). These are now managed by a Biotechnology Authority ,	Ratified both the CBD and Cartagena Protocol, Participates in the UNEP-GEF Project	Review of current legislation to align it to the Protocol Technical, legal and infrastructural

		which was set up in 2006.		capacity building
				Public awareness and participation

Sources: African Centre for Biosafety http://www.biosafetyafrica.net/south.htm; Moola and Munnik (2007); Mnyulwa and Mugwagwa (2005); www.isaaa.org/; Mafa (2004); Mulenga (2006), RAEIN-Africa (2005)

The so-called 'traditional' or 'low-end' biotechnologies are the most widely used, especially in agriculture, where techniques such as tissue culture, biological nitrogen fixation and artificial insemination are in use in almost all the 14 countries. Higher level biotechnology techniques, such as marker-assisted selection and genetic engineering are used in only a handful of the countries, for example Malawi, Mauritius, South Africa, Zambia and Zimbabwe, with South Africa being the only country that has reached the commercialisation stage insofar as products of genetic engineering are concerned (Mnyulwa and Mugwagwa, 2005). In fact, up to end of 2007[10], South Africa was the only country in the rest of Africa to have commercial plantings of GM crops, having grown GM maize, cotton and soyabean for close to 10 years. The scenario above shows that the countries are facing varied levels of pressure, targets and obligations with respect to putting in place biosafety systems, and this also relates to extraneous issues such as food aid. Table 2 gives details on which country has received food aid, this being a further illumination of how the pressure exerted by the food emergency of 2002/03 was not necessarily uniform across the countries as may be discerned from a cursory analysis.

2.2 Biosafety

From a biological science perspective, the concept of **biological safety** (or **biosafety**) has paralleled the development of the science of microbiology and its extension into new and

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[10] *Burkina Faso and Egypt joined the so-called 'Biotech Countries' in the middle of 2008, with commercial plantings of Bt-cotton and Bt-maize respectively (Source: International Service for the Acquisition of Agri-biotech Applications, July 11 2008 Bulletin)*

related areas (e.g. tissue culture, recombinant DNA, animal studies, among others). The knowledge and skill gained by microbiologists necessary to isolate, manipulate and propagate pathogenic microorganisms required parallel development of containment principles, facility design, and practices and procedures to prevent occupational infections in the biomedical environment or release of the organisms to the environment. However, as used under the Cartagena Protocol on Biosafety (CPB)[11] to the Convention on Biological Diversity (CBD), the concept of biosafety refers to the legal actions that an importing country is entitled to take under international environmental law with the aim of protecting the biological diversity of its conventional plants and animals against the risk of contamination through imported varieties or species consisting of so-called Living Modified Organisms (LMOs) (cf. Mackenzie *et al*, 2003). These actions consist primarily of preventive or precautionary trade measures, and such restrictions or bans include the elaboration, negotiation and implementation of pertinent standards, and the institutionalization and international 'harmonization' of the related regulatory framework and procedures. They also take into consideration the legally less clearly circumscribed concerns over related public health issues and socio-economic considerations. All these provisions aim at a non-hierarchical and mutually supportive relationship with other international agreements, especially with World Trade Organisation (WTO) rules, with the Codex Alimentarius Commission standards on food safety, and with the International Plant Protection Convention[12]; among others**.** Box 1 below gives a brief description of the Cartagena Protocol on Biosafety.

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[11] The Cartagena Protocol on Biosafety to the United Nations' Convention on the Sustainable Use of Biological Diversity, adopted by the Conference of the Parties to the Convention on 29 January 2000, *http://www.cbd.int/biosafety/*
[12] *See: http://www.ecolomics-international.org/headg_biosafety.htm#What_is_biosafety_*

Box 1: Brief Treatise: The Cartagena Protocol on Biosafety

The Cartagena Protocol on Biosafety was adopted in January 2000 as a supplement to the Convention on Biological Diversity (CBD) to serve as the global framework on biosafety. The Protocol addresses the safe handling and use of living modified organisms (LMOs) that may have adverse effect on biodiversity, taking into account risks to human health and focusing specifically on transboundary movements (CBD Secretariat, 2007[13]). Countries are given authority by the Protocol to assess the risks posed by LMOs before they accept them. Their acceptance or rejection of the products is enshrined in the advance informed agreement, and the precautionary approach emphasised by the Protocol. A communication mechanism for exchange of information and experiences on biosafety with the world community is provided via the Biosafety Clearing House (BCH) Mechanism.

The Protocol makes it clear that Parties to the Protocol must develop or have access to the ''necessary capacities to act on and respond to their rights and obligations''. National capacities are seen as a necessary prerequisite for the successful implementation of the Protocol, hence many national, regional and international agencies have been engaged in assisting countries, singly or in groups, to develop the necessary technical and regulatory capacities. The efforts of the three supranational organisations are seen as some of these many efforts towards equipping countries for implementation of the Protocol and strengthening their risk management and decision-making with respect to biosafety.

Even before the advent of the CPB, there were many efforts to build regulatory and technical capacity in countries (including developing countries) for the development and enforcement of mechanisms for safe use of biotechnology. However, since its entry into force in September 2003, the Protocol has served as a key driver of both national and international processes in the handling of products of modern biotechnology. In addition, and looking specifically at countries in Sub-Saharan Africa, many policy and regulation development models used elsewhere in the world have been availed to key stakeholders, governments and

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[13] *http://www.cbd.int/biosafety/*

organisations to employ in the policy development process (e.g. the ISNAR and UNEP models and the African Model Law on Safety in Biotechnology, cf. Paarlberg, 2000). Lessons have also been drawn from the European and American experiences.

2.3   Pressure from Protocol obligations[14]

Currently, although all the SADC countries have signed and/or ratified the Protocol, most of them are all still struggling to honour their obligations with respect to domesticating its provisions into their respective national legal systems (Mayet[15], pers comm., 2007). This has been due to a number of factors, including the perennial lack of prioritisation of biosafety issues in the respective national agendas, lack of financial resources and trained manpower or expertise in the field of biotechnology, as well as limited of awareness of biotechnology issues by policy makers, lawyers and the general public (RAEIN-Africa, 2005). The absence of active research programmes employing modern biotechnological techniques in the majority of the countries has also been seen as a hindrance to the development of national policies and regulations. In other words there is a lack of adequate technological developments to act as a catalyst for development of regulatory mechanisms (Ushewokunze-Obatolu, 2005; Jaffe, 2006; also Table 1).

Meanwhile, with respect to national policies and biosafety mechanisms, three clusters of the countries emerge[16]; those that have both policies and regulatory mechanisms for biotechnology/biosafety (and these are Malawi, Mauritius, South Africa, Zambia and Zimbabwe); those that have policies only, but no legal frameworks for biosafety (Namibia

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[14] See Table 2
[15] Mariam Mayet is a lawyer and the director of the Johannesburg-based African Centre for Biosafety
[16] Source: On going personal communications between author and various sources in the countries, see Table 1

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and Lesotho), and those that are still at various stages in the process of developing both their policies and their regulatory frameworks (Tanzania, Angola, DR Congo, Mozambique, Swaziland, Madagascar, Botswana). However, even within each category, the countries are not necessarily at the same specific level and they have employed different approaches and mechanisms[17] to attain that particular status, and the lengths of time and amount (and type) of resources[18] spent to achieve this also differ. This different status of countries forms a key variable in the quest to understand the different national motivations for cross-national convergence; especially whether and how countries are prepared to 'step up' or 'step down' to the agreed regional convergence level. Will there be an efficiency-mandated outcome, or a 'race to the bottom'[19], the latter being one of the stakeholder fears regarding the effect of globalisation and/or homogenisation of practices in general (cf. Heichel *et al*, 2005).

2.4 Drivers for biotechnology/biosafety policy development

Countries of the SADC region recognise the importance of issues of good governance as they relate to biosafety, including individuals' constitutional rights to information and rights to a clean and safe environment. The recognised potential of modern biotechnology in addressing some of the existing constraints, especially in agriculture, also serves as a driver towards establishment of effective regulatory mechanisms. Other issues relate to transparency and inclusiveness that touch on the making and implementation of relevant public policies (Ushewokunze-Obatolu, 2005). With these constitutional obligations in mind, a number of response mechanisms have evolved in these countries to cope with the biotechnology regulation challenge. It has been observed that the key drivers for biotechnology policy and

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[17] E.g. workshops, think tanks, policy consultants, advisory committees etc
[18] Resources here include policy/legislation models used as well as the usual financial, human and other material resources
[19] See Chapter 2 for more discussion on this.

regulatory framework development in these countries[20] include: responses to international obligations and pressures created by international legal instruments and processes, chief among these being the Cartagena Protocol on Biosafety (see Table 2 below). These scenarios can essentially be described as reactionary (Naluwairo, 2004), and countries in this category tend to refer more to Biosafety Policy, than Biotechnology policy, with the emphasis being more on minimising the risks posed by the technology, as opposed to a dual approach to both the risk regulation and technology development. There are also proactive scenarios, in which countries are responding to national goals and priorities and at the same time taking advantage of the existing international legal framework. These countries are putting in place broader biotechnology policies with the dual thrust of minimising the risks and maximising the benefits through deployment of the technology (Kalibwani *et al*, 2004). There are those countries that are engaged in policy formulation processes mainly because the international framework provides funding mechanisms to engage in these processes. Such countries are also being reactive, and to some extent opportunistic. Then there are those countries engaging in the processes because other countries in the region are doing so, or because of pressure from other countries in the region, especially because of SADC's shared objective of 'national development based on regional cooperation and integration' (Ushewokunze-Obatolu, 2005). This last scenario represents a 'joining the bandwagon' tendency, and also possibly reflects the existence of some hegemony in the region with respect to this technology or the various other facets that come with the technology. Meanwhile, some commentators argue that the flexibility of the Cartagena Protocol allows for these varied approaches and responses (e.g. Mayet pers. comm., 2007).

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[20] See Table 1 for this characterization of the countries and the status of their biosafety systems, including protocol ratification

Table 2   Some sources of pressure on SADC countries to comply with the Biosafety Protocol

Activity/Issue (Source of Pressure)	Number of Countries Concerned	Relevant Protocol Provisions Impacted on by Issue
Development of national biosafety regulations	All countries	Article 2 (1) 'Each Party shall take necessary and appropriate legal, administrative and other measures to implement its obligations under this Protocol'.
Suspected GM Food aid from US and World Food Programme	10 countries[21] in the region have received food aid from US or WFP[22] in the last 5 years (exceptions – Botswana, Mauritius, Seychelles and South Africa)	Article 6 (Transit and Contained Use), Article 7 (Advance Informed Agreement), Article 8 (Notification), Article 10 (Decision Procedure), Article 18 (Handling, transport, packaging and identification), Article 20 (Information sharing and the Biosafety Clearing House), Article 23 (Public Awareness and Participation)
Field trials	South Africa, Tanzania, Zambia and Zimbabwe	Article 23 (Public awareness and Publication) Article 16 (Risk Management)
Commercial plantings	South Africa	Article 23 (Public awareness and Participation) Article 16 (Risk management) Article 26 (Socio-economic considerations)

Table compiled by author using data from www.wfp.org; www.cbd.int; and Moola, S and Munnik, V (2007)

As highlighted in chapter 1, one argument among those advocating for cross-national convergence of the regulatory practices (including SADC agriculture ministers in their call for harmonisation) is that having similar systems would help countries deal with some of the challenges and obligations presented in table 2, above. More details on the issues in this table, including the types of biotechnology techniques being used in the different countries were presented in table 1. Meanwhile, the thesis now proceeds with a look at the broader issues around collective responses to problems, seeking to understand if the envisaged convergence is treading on a beaten path, or it is a radical break from norms elsewhere. This to a large extent has a bearing on the forces around the issue, and ultimately, its feasibility.

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[21] Source – See Moola, S and Munnik V (2007). GMOs in African food and agriculture: Status report 2007, African Centre for Biosafety
[22] www.wfp.org/aboutwfp/facts

2.5 Need for collective action

International relations scholars are in agreement that there is an increasing number of problems that national governments cannot solve unilaterally, for reasons that range from increased governmental responsibility in domestic affairs to the increase of collective problems attributable to globalisation and scientific progress (Hasenclever *et al*, 2000; Sampson, 1982; Finnemore, 1996:47). There has also been an 'erosion of the long-familiar building blocks of the political world' (Ohmae, 1995:7), and countries increasingly find themselves having to cooperate with others in dealing with collective dilemmas that transcend national boundaries. For developing countries, the area of regulation of modern biotechnology is one challenge largely viewed as warranting such collective action because of inherent country deficiencies, e.g. weak technical and decision-making capacities, among others (explained elsewhere in this thesis). However, cross-country cooperation is not an easy undertaking for political, economic and many reasons embedded in or transcending the countries. The conditions under which this cooperation is possible are thus the subject of intense research in public policy, international relations and allied areas (Stone, 2000).

Coordination of policy at international level is complicated by many factors, starting with the ambiguity and disagreement about definitions of 'policy'; which means different things to different people, and invariably contains and expresses the conflicts and tensions of contemporary society (Considine, 2005: 1). Policy-making happens in a world undergoing continuous change, with older institutions and governance systems breaking up, and new ones emerging. In most democracies, policies are essentially a result of multistakeholder processes, encompassing different sectoral and societal interests (Carlson, 1999: 50). Yet, the policy environment is recognised as one of the key variables that have to be thought about

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and acted upon if countries are to benefit from any innovation or investment in research (Clark *et al*, 2005: 75). Countries of the SADC region have thus been making individual and joint efforts to develop and maintain a conducive policy environment with a balance between the risks and benefits of biotechnology. However, the biotechnology policy arena is highly contentious and has stagnated in many contexts as newer forms of modern biotechnology emerge (Puplampu and Essegbey, 2004). The new technologies are entering an already-loaded context, where players have different prior beliefs and positions (cf. Mesegeur, 2005). For example, the issues of biosafety and convergence of biosafety systems are enmeshed within the political economy of GM food, especially the often conflicting objectives between trade and environment management obligations (Stevens, 1993; Murphy and Yanacopulos, 2005) and this complicates the numerous dynamics at play (Russell and Vogler, 2000: 2). Another of the many challenges around the technology is that it is dominated by a diminishing number of GM biotechnology giants (Somsen, 2007: 98). Their aggressive corporate policies of control and the vulnerability of the region's countries in the face of these powerful corporate actors and states is both a cause for worry, and a source of motivation for the convergence agenda, creating both the background and foreground for the research. As a result, biotechnology is not only a dynamic scientific discipline, but it is also a game of high stakes hinging on poverty, polarisation among interest groups and the seemingly elusive target for developing countries to develop adequate capacity levels to maximise the benefits and minimise the risks of the technology (cf. Walters, 2004; Kinderlerer and Adcock, 2005). The challenges at national level are understandably magnified when the issues play out at regional level.

Regional collaboration is seen by some countries as an opportunity to 'internationalise' or 'legitimise' their domestic policy preferences and, among many other facets, this research explored the motivation as well as the costs and benefits of the desired regional governance mechanisms. For the policy analyst and researcher, a look at regional governance systems comes hand in hand with a high diversity of the subject matter that needs to be considered, necessitating integration of diverse expertise and different knowledge sets in trying to understand the issue.

2.6   Towards convergence of the national biosafety systems[23]

Kerr (1983) defines convergence as 'the tendency of societies to grow more alike, to develop similarities in structures, processes and performance'. The various aspects of this widely accepted definition form the basis of the argument presented in this thesis. The concept of convergence and some of the mechanisms through which cross-national convergence can be achieved for example harmonisation, coercive imposition of policies and policy diffusion (see Busch and Jorgens, 2005; Holzinger and Knill, 2005a; Drezner, 2004), are the subject of this research. From the region, convergence is being championed both in terms of having similar systems in countries, and in the mechanisms for implementing these systems. From the researcher's perspective, the interest is in convergence both as a process and an observable phenomenon.

The mid-1990's saw the commencement of development and implementation of a number of initiatives aimed at helping countries in the SADC collectively and singly to develop capacities to harness and manage biotechnology. To date, the region has gone through a

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[23] Policy convergence can occur at sub-national level. However, this thesis is concerned with cross-national convergence, both in space and time.

developmental process punctuated by technological and political moments which have had short-, medium- and long-term impacts alike on development of national biosafety systems and convergence broadly. The timeline (table 3 below) shows some of these developments. The fact that the countries of the region and the various organisations felt it necessary to start initiatives to deal with biosafety issues, the fact that they were all experiencing by and large the same pressures from the technology, including regional and global obligations, and given the small pool of policy actors who were dealing with the issues in the countries and in the various cross-national initiatives; all formed part of the rationality behind expectations of convergence of the regulatory systems being developed (cf. Dimitrova and Steunenberg, 2000). This expectation based on the effect of identical pressures and diminished ability to act singly is supported by much of the literature on policy convergence (Heichel *et al*, 2005).

Table 3: Timeline of key biotechnology/biosafety activities in the SADC

1963	OAU, precursor to the AU, formed
Pre-1980	Limited cooperation in agricultural research or Science and Technology
1980	Southern African Development Coordination Conference (SADCC[24]) formed
1981	Southern African Centre for Cooperation in Agricultural Research and Training (SACCAR) formed
1990	Southern African Development Community (SADC) formed replacing SADCC
1994	South Africa (SA), the biggest economy in the region, gains independence and joins SADC
1994	**Regional Biosafety Focal Point (RBFP) project commences with funding from the DGIS[25]**
1997	SA's GMO Act launched
1999	SA commences open growing of GM cotton in the smallholder farming

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[24] Precursor to the SADC
[25] See for example, Chetsanga, C J and Chigogora, J L (2001). This project covered 12 countries in eastern southern Africa, with a main objective of building regulatory and technical capacity. It ended in 1997

sector (Makhathini Flats, KwaZulu-Natal Province)

2000	**Cartagena Protocol on Biosafety is completed, and some SADC countries sign and ratify it**
2000	Zimbabwe institutionalises biosafety system through Statutory Instrument 20 of 2000
2000	OAU Model Law on Safety in Biotechnology launched
2001	SA starts commercial growing of GM maize
2001	**AfricaBio public biotechnology awareness project commences in 6 SADC countries**
2001	**SARB biosafety capacity building project in 7 SADC countries**
2001	BTZ implements eastern and southern African regional consultation on biotech and biosafety. Need for harmonisation emerges as a key issue
2001	UNEP phase 1 projects commence for some countries in the region
2001	NEPAD launched, with a mandate for science and technology-led development of Africa
2002	SADC Biodiversity Support Project launched
2002	Bt-cotton trials in Zimbabwe; Biosafety regulations enacted in Mauritius
2002/03	**Food crisis in the SADC region and receipt of GM maize by some countries**
2003	**SADC sends a team of scientists to Europe, USA and SA on a fact finding mission regarding the way forward on biotechnology processes and products**
2003	**SADC Heads of State give a deadline of December 2004 for all countries to put in place biosafety mechanisms[26]**
2003	**SADC Advisory Committee on Biotechnology and Biosafety (SADC ACBB) formed after the fact-finding mission; draw up guidelines on transboundary movement of GMOs in the region[27]**
2003	Zambia says 'No' to GM-maize grain, Malawi accepts the grain; Zimbabwe and Mozambique mill it before distribution
2003	FANRPAN, IFPRI and NEPAD team up in a regional biotechnology policy dialogues project[28]

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[26] SADC (2004)
[27] See SADC (2003)

2002	Malawi enacts her biosafety legislation
2004	USAID's Programme on Biosafety Systems commences activities on biosafety capacity-building
2004	SA GMO Act undergoing revision and alignment with the Cartagena Protocol
2004	SA biotechnology strategy published; Zambia's Biotechnology and Biosafety Strategy is published
2005	RAEIN-Africa launched
2006	Zimbabwe completes National Biotechnology Policy, and sets up a Biotechnology Management Authority[29]
2007	Zambia enacts Biosafety Act
2007	SADC developing a Science, Technology and Innovation protocol
2007	**SADC ACBB relaunched**

The above is by no means an exhaustive timeline, but it serves to indicate of some of the major developments that have contributed to the prevailing status in the countries and the region. It is also important to note that most of the developments have not been done under any special or explicit 'convergence agenda', but that convergence was implicit or only incidental to the agendas of some of these different programmes. Overall, there was a constant recognition that policy convergence efforts were not separate policy processes, but were part of wider policy processes, and they were therefore shaped by these processes.

In addition, while all these developments have been going on at national and regional levels, a number of decisions, declarations and programmes towards convergence of biosafety systems in Africa have been put in place. These cover both the continental and sub-continental levels, including the SADC region. Table 4 below gives details on some of the

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[28] NEPAD and IFPRI (2004) and Omamo and von Grebmer (2005)
[29] Mafa (2004)

organisations that are engaged in activities towards cross-national convergence of biosafety

systems in Africa:

Table 4[30]: Organisations/processes, geographical area of operation and focus of their activities in the cross-national convergence of biosafety systems in Africa

Organization(s)/ Processes	Geographical level of operation	Focus of biosafety activities
The Cartagena Protocol on Biosafety to the Convention on Biological Diversity	Global	Sets global rules and regulations on the transboundary movement, transit, handling and use of living (genetically) modified organisms that may have adverse effects on the conservation and sustainable use of biological diversity, also taking into account risks to human health. Box 1 gives more information on the Protocol.
The African Union (AU),	The whole of Africa	The AU set up a group of experts in June 1999 to draft a comprehensive framework of biosafety regulations that would serve as a model law to protect Africa's biodiversity, environment and the health of its people. This initiative resulted in the African Model Law (AML) on Safety in Biotechnology which was finalized in May 2001. In July 2003 Decision EX/CL/Dec.20-74 (III)[31] of the AU Executive Council endorsed the Africa-wide Capacity Building Programme in Biosafety in which adoption of the AML was encouraged for creation of 'a harmonized Africa-wide space and system in biosafety …'. In November 2006, the Human Resources, Science and Technology Directorate of the AU Commission proposed an African Strategy on Biosafety[32] in which, among other issues harmonisation through regional economic communities (RECs) and use of the AML was encouraged. A December 2006 Conference of AU Ministers of Agriculture[33] declared an 'African Position on GMOs in Agriculture', emphasizing the precautionary approach and establishment of a 'mechanism to facilitate harmonisation of regulatory systems' e.g. through encouraging and facilitating

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[30] Table designed by author with information sourced from Ayele (2007), www.nepad.org, www.unep.org, www.africanunion.org, www.sadc.int (accessed May 2007)
[31] AU EX/CL/Dec.20-74 (III)
[32] AU (2006b). African Strategy on Biosafety
[33] AU Dec 2006a – An African Position on GMOs in Agriculture

		dialogue between RECs. The AU Human Resources, Science and Technology (HRST) Directorate is currently implementing an Africa-wide Biosafety Capacity Building Project with funding from Germany.
The Southern African Development Community (SADC)	14 countries in southern Africa	The SADC is recognised as one of the first RECs to develop guidelines on GMOs and Biotechnology, and this happened in response to the food aid crisis which followed the 2002 drought in the region[34]. In 2003, the SADC Secretariat, through its Food, Agriculture and Natural Resources (FANR) Unit set up the SADC Advisory Committee on Biotechnology and Biosafety (SACBB), to draft guidelines/recommendations on handling of food aid; policy and regulations (including harmonization); capacity-building; and public participation in biotechnology and biosafety. The Committee was reconstituted in 2007 after a three year period of low activity to develop and propose institutional arrangements for a 'SADC Framework on the Safe Handling and Transboundary Movement of GMOs'[35]. The proposed framework recommends establishment of a SADC Biosafety Focal Point, to which Member States will communicate national decisions on GMOs. Among other provisions, countries will be responsible for monitoring their obligations under the Framework; while cooperation in research and development on biotechnology and biosafety is 'encouraged' and the SADC Secretariat is tasked to 'coordinate and mobilise the required resources'. Disputes among countries will be referred to the SADC Tribunal (Article 16 of the SADC Treaty). Meanwhile, through the SADC Ministerial Council on Science and Technology, region is developing a Protocol[36] on Science, Technology and Innovation (STI) in which harmonization of biotechnology policies and regulations is one of the targets. An STI Unit is proposed, to be housed in the SADC Secretariat.
The New Partnership for Africa's Development (NEPAD)	All countries from across the continent	In 2005 the NEPAD, in partnership with the AU set up a high level African Panel on Biotechnology (APB) to analyze the African biotechnology terrain and make recommendations on how best to use the technology for Africa's development, including developing an African strategy on biotechnology and biosafety. The APB is mandated to propose and promote the adoption of a regional strategy that reflects Africa's common values, articulates shared needs and a focus on

[34] e.g. Clark et al, 2005
[35] Ref – Draft SADC Framework on the Safe Handling and Transboundary Movement of GMOs
[36] Ref: SADC – Draft 2 – Protocol on Science, Technology and Innovation

		common opportunities. The Panel has produced its report (*Freedom to Innovate: Biotechnology in Africa's Development, 2007*). Dissemination to key partners and adoption of this report by regional economic communities and dissemination of the report to strategic partners is in progress. The NEPAD, through its Office of Science and Technology (OST)[37] and the African Ministerial Council on Science and Technology also implements an African Biosciences Initiative (ABI) and the African Consolidated Plan of Action (CPA) for Science and Technology through Centres of Excellence in Eastern, Western, Southern and Northern Africa as part of a 'dual approach' to technology and policy development.
The United Nations' Environment Programme (UNEP)	Some of the countries across the continent	Some countries from the SADC region have participated in the Global Environmental Facility/UNEP Biosafety Project; starting with phase 1 - Pilot Biosafety Enabling Activity; Phase 2 – Development of Biosafety Frameworks; and Phase 3 – Implementation of National Biosafety Frameworks. The different phases of the activity had different but complementary and cumulative objectives hinging on promoting information sharing and collaboration, especially at the regional and sub regional levels and helping countries comply with the CPB. For the SADC region, only Namibia participated in all three phases.

These activities are a few of many other programmes and activities towards convergence that have taken place in other regions of the continent, some with an impact on activities in the SADC as well. For example, in 2006, the Common Market for Eastern and Southern Africa (COMESA)[38] implemented a project entitled Regional Approaches to Biosafety in Eastern and Southern Africa (RABESA), with technical assistance from the African Centre for Technology Studies (ACTS). Among the recommendations were the need for cooperation at COMESA regional level in assessment and management of potential risks from GMOs, the

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[37] www.nepadst.org
[38] In May 2006, COMESA stakeholders endorsed plans by the COMESA to develop a regional policy on GMOs, to cover issues on commercial planting, trade and GM-food aid. Among other issues, a regional centre of excellence in biotechnology and biosafety and an expert's panel will be set up (ISAAA, CropBiotech Update, June 2006). It is very important to see how this reconciles with the NEPAD, AU and SADC initiatives already in place.

establishment of 'a regional panel of experts to advise on matters of biotechnology and biosafety' and the establishment of centres of excellence in biotechnology and biosafety[39]. Among the conclusions from the RABESA project was the observation of expectations and pressures from extra-regional players. For example, the World Food Programme (WFP) had their own preferences on how harmonised regional policies for acceptance of GM food aid should pan out. Some fears for the WFP revolved around the additional time and monetary costs, e.g., if countries decided on regional harmonisation around 'milling (of grain) prior to distribution' (Paarlberg *et al*, 2006).

The East African Community (EAC), to which one of the SADC states (Tanzania) belongs, has also taken some steps towards a common regional framework on biosafety, starting in 2004 with the EAC Council of Ministers' establishment of a regional experts' panel to advise on biotechnology and biosafety. The experts recommended development of an EAC regional policy, legal and regulatory framework on GMOs, encompassing food security, environment management and public health. Further activities were held in 2006, and the pursuit of a regional regulatory approach and policy harmonisation were endorsed. Elsewhere, the Economic Community of West African States (ECOWAS) has also made steps towards regional harmonisation of biosafety systems; this being one of the recommendations from the June 2005 Bamako (Mali) ECOWAS Ministerial Conference on Biotechnology. The conference also recommended the 'institutionalisation of the ministerial conference on biotechnology'[40]. What becomes clear from this look at the various players and what they are

[39] Wakhungu J W (2006) in Keynote Address to the Innogen Annual Conference 2006: Genomics for Development? The Life Sciences & Poverty Reduction, Regents College, London, 2006; entitled Biotechnology and Trade in Africa: The Case Study of the COMESA/ASARECA. See also www.acts.co.ke; and Paarlberg et al (2006) on costs and benefits on various GMO policy options
[40] AU – African Position on GMOs in Agriculture (2006)

doing is that the convergence agenda is alive and moving forward in Africa, and the desire to study and understand it is therefore well placed.

In all the above, cross-national convergence of biosafety systems is invariably seen as desirable from economic, regulatory, technological and environmental view-points as in all cases it will allow countries to share resources, draw lessons from each other, shorten technology and product approval processes and also positively impact on the environment conservation efforts of many of the countries (Ayele, 2007). However, the motivation and compelling factors for convergence (among other factors), from international and national perspectives were observed to be in a continual state of fluctuation, and the impact of this on the convergence agenda was one of the many interests for this study.

2.7   Concluding remarks

This chapter further elucidated the context for the analysis into how transnational mechanisms for governing modern biotechnology facilitated by three supranational organizations are taking root within the contentious and unstable biotechnology policy environment of southern Africa. This wider biotechnology/biosafety context of the SADC region was seen as crucial as it serves as a source of the constraints targeted by the cross-national policy convergence, thus dictating the extent to which the facilitatory role of the three SNOs can be effective. In addition to analyzing the emerging mechanisms towards cross-national policy similarity/convergence, the research also looks at the factors facilitating the action and impact of these mechanisms, and this context has highlighted some of these together with their fluctuating spatial and temporal locations. This context points to a backdrop with many and contending interests, values, power relations and knowledge

dynamics around the technology, within the member states, among stakeholders, and in the three supranational organizations, further pointing to a multilevel and multi-actor issue, from which only an integrative and multi-disciplinary approach would yield analytical insights. The thesis now proceeds with an analysis of some of the theoretical perspectives that were reviewed as part of seeking explanations for the obtaining and emerging policy scenario, and seeking methodological guidance to this end.

CHAPTER 3:   LITERATURE REVIEW

> *'From a governance perspective, the process of governing is an interactive one because no single actor has the knowledge and resource capacity to tackle problems unilaterally ... and the powers of government tiers are no longer clearly distributed, as cooperation replaces hierarchy, and legislative competencies are shared among several levels ...' (Lyall and Tait, 2005: 4).*

3.0   Introduction

This study sought to understand the roles that three supranational organizations were playing in bringing about cross-national convergence of biosafety systems among SADC countries. The first two chapters have presented the complex context in which this policy challenge was being tackled; a context, as highlighted in the theoretical framework, which created an empirical and theoretical imperative for broad-based or multi-pronged analytical approaches. The context underscored various technological, regulatory and organizational factors, and the contentions around the benefits and risks from the technology, which have all led to a diminished role of governments as sole decision-makers, and why different groups of actors and decision-makers, including the SNOs, have entered the fray (echoed by quote above). This chapter presents an analysis of the key theoretical perspectives that were consulted in seeking to understand how the three SNOs were dealing with these different dynamics in their facilitation of a transnational regulatory agenda for biosafety. Established theoretical perspectives provided insights for the data gathering methods employed by the study, and also brought explanatory power to illuminate and situate the findings from the study within the bigger fields in which the research is located. This literature analysis scanned available research with three interrelated objectives; firstly looking at perspectives around emergence of convergence, i.e. systemic conditions that could facilitate convergence, and how convergence happened under these conditions. The next objective was to bring out

perspectives around actor preferences vis-à-vis cross-national cooperation, i.e. who wanted convergence and why? And how did they frame the convergence, including what factors influenced them to push for convergence? The third objective was to look at convergence as having happened, looking at how it would endure and the threats to its sustainability in the face of different forces brought about by different human and non-human actors in the context. The literature review thus sought to reveal the theoretical and methodological approaches to dealing with these three, and the broader question of the research which sought to understand how and to what extent the three SNOs were influencing cross-national convergence of biosafety systems in the SADC region.

The theories looked at also aimed to bring out alleged tensions and overlaps between what Martin and Richards (1995) identified as the common approaches to studying science and technology controversies; i.e. positivist, group politics, constructivist and social structural approaches. Biosafety was viewed as a science and technology controversy; in much the same way as it was a potential avenue for countries to alleviate their development challenges. From a positivistic perspective, there was room for both cognitive and social 'truths' in resolving the regulatory challenges, while the group politics approaches recognize the activities of groups such as expert panels and government bodies (Martin and Richards, 1995). The constructivist perspective looks at the interaction of different cultures around the controversial science while social structural approaches look at social structures such as class, the state and patriarchy in shaping the relations around the issue. Each approach has its own limitations in emphasizing one set of issues or actors over others, and it was in this background that all approaches were kept in mind during the research. The whole thesis in the main is about how the three SNOs were innovating around the collisions and overlaps

between many interests, powers and knowledges in the quest for a cross-national governance framework for modern biotechnology. These tension areas varied in space and in time, and it was the sum total of these clashes which was being analysed with the view to concluding whether or not convergence was a positive-, negative- or zero- sum-game.

3.1   Theoretical perspectives on key themes

The literature search for this study was guided by the appreciation that this study was about boundary crossings at different levels (cf. Jasanoff 2005: 26; Keck and Sikkink, 1998), including but not limited to interests, disciplinary, institutional/organizational, sectoral and national level boundaries (Finnemore, 1996: 45), all this happening within a context where cooperation appeared to be an inevitable policy option, yet one where little understanding existed with respect to operationalisation. These boundaries represented both the motivation for convergence and the barriers that the process of cross-national policy convergence had to overcome. All this had to be achieved in the backdrop of different levels of utilization of the technology in question across the different boundaries, which entailed different functional needs, as well as different understandings of the envisaged output of the processes.

An initial literature review showed that many theoretical perspectives could predict and explain this spread, for example, neofunctionalism could bring an understanding of the demand for transnational governance through shared functional needs around biotechnology and biosafety (Cichowski, 2007); regime theory also predicted space for transnational governance, for example through reduction of costs of information and policy innovation (Keohane, 1988; Marsh and Smith, 2000); the Actor-Network Theory pioneered by Latour, Callon, and Law (Callon, 1986: 200) could be a good descriptor from a socio-technical

perspective, and a recognition of the interaction between human and non-human actors in the issue area. Institutional theory (e.g. Scott, 2004), by considering the processes through which structures, including schemas, rules, norms, and routines, become established as authoritative guidelines for social behavior, also possessed explanatory potential. The ostensible preoccupation with stability and order in social life, however could be challenged with respect to the biosafety arena in the SADC. Systems and network theories were also reviewed; their emphasis on actors and linkages/knowledge flows between them being a key attribute. For the study region, the fluctuation in the number, location and identity of actors, and the intermittent linkages between them strengthened the case for more encompassing approaches to explaining the dynamics around biotechnology policy convergence. Therefore, in the final analysis, the multi-level, multi-actor and ever-changing nature of the biosafety arena in the SADC region made all these and other perspectives inadequate to tell explicitly how and when this convergence could happen. Thus a 'pyramiding approach'[41] was employed, where the relevant theoretical perspectives were brought together around the three-factor Busch and Jorgens typology employed by the study as an organizing tool.

Meanwhile, it also emerged that the 'newness' of the technology had a number of empirical and theoretical implications, which impacted on the research as a result of how the technology influences framing of the regulatory responses. From a sociology of expectations point of view; looking at the technology from 'risk' and 'potentials' perspectives (Borup *et al*, 2006) was also important. Risk regulation and benefits framing are central to how the different interests and expectations are constelling towards the desired regional framework (cf. Rothstein *et al*, 2006).

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[41] Metaphor derived by author from the concept of gene-pyramiding in molecular biology, where best effect is obtained from combining various genes within an 'expression cassette'.

From an STS perspective, the research also desired to understand the users of a technology and a regulatory system, and how they perceived its utility in their system. Williams and Edge (1996) argue for a 'social-shaping approach' to technology and policy development – where there is interplay between technologies, as well as social and economic factors. This is also in line with the broader theories which question technological determinism, and attack the deficit model for claiming that the lay public has nothing to contribute in terms of relevant knowledge that might lead to simplification of a technical problem (cf. Wynne, 2002). Users in this case were the region, the countries and the implementing organizations and individuals at these levels. They all had different visions and imaginings of what they desired and what they perceived society to desire, and they channelled their knowledge to the policy arena through different means. The variation among these different actors in the different countries of the study region implied different social contexts and hence understandings and interpretations of the policy issue at hand (Irwin, 2001). The empirical perspectives results presented in chapters 6, 7 and 8 endeavour to show how these different challenges were negotiated at the level of policy and practice, how visions were deconstructed and reconstructed, and how the many boundary crossings, especially in terms of expertise among the operatives were dealt with (Haas, 1992; Sampson III, 1982; Jasanoff, 1987), and precisely, what roles the three SNOs played in all these interactions.

3.2   Collective problem and collective action – a governance challenge

What has been presented in the background chapters and in the sections above confirm the shift from State-power, or the idea of governments as sole-decision-makers and arbiters, to processes of governance that encompass networks and groups of decision-makers (cf. Bevir

et al. 2003). This thesis presents a case study that highlights how these issues are negotiated at the cross-national level. Governance in this study was used more as it relates to the processes of creating conditions for ordered rule and collective action (cf. Stoker, 1998), within a context where 'no single actor has the knowledge and resource capacity to tackle problems unilaterally' (Kooiman 1993: 40). Particular interest was on how the complex interactions at various levels within the SADC biosafety terrain described earlier and throughout this thesis shaped the convergence agenda, and with what impact on the collective action desired.

Therefore, while the study was focusing specifically on cross-national convergence of biosafety systems and the roles of the SNOs in this, the bigger issue under which this study fell is that of national and cross-national responses to technology. These responses were all happening at a time when technological, ecological, political, economic and social environments have continued to become so intricately enmeshed that changes taking place in one affect all others (Ruggie, 1975). Closely tied with these intricacies is the increasing complexity of new scientific and technological knowledge. Technology now involves much more than science, with social and economic imperatives playing prominent roles (cf. Williams and Edge, 1996). Together, these challenges combine to make capacities of national and international systems of management increasingly inadequate ((Ruggie, 1975; Lyall and Tait, 2005: 4) necessitating the emergence and development of innovative and new multi-actor systems. The blurring of boundaries between the different disciplines has brought a challenging dimension to the systems being developed (Jasanoff, 1987) such that a purely technological intervention, for example, has to be looked at in light of its impacts and implications on other policy arenas. Technological determinism has thus been eroded by the

bigger political interests and other forces in the issues, both in terms of problem definition and in the formulation of solutions to the problems (Walters, 2004). In this research, countries were seen to be facing two major tensions, among others; tensions from the collective problem they were facing, and tensions from the collective action they had to undertake. The necessity of bringing policy makers and scientists together to chart an amenable policy response to the challenges brought by modern biotechnology came with a new challenge of how to make these groups work together in the backdrop of working arrangements in which they were not used to cooperating. Thus there was need to deal with these discipline-embedded challenges (Jasanoff, 1987) in the pursuit of sustainable and synergistic interactions between the individual and organizational actors. The strength of prior beliefs on the issue among the different actors affects the learning desired to break the different boundaries, with vague or weak prior beliefs being preferred if easier learning is to be achieved (Meseguer, 2005). Hence, the flow of knowledge across disciplines, as well as the organizational, sectoral and national boundaries can be described in terms of a system of innovation (e.g. Hall *et al*, 2001), with the specific challenge for this research being to establish how this flow occurs, e.g. through people or other resource flows between the actors. The systems of innovation are operational at all levels from the organizations to the regional levels.

At the cross-national level, countries were at a quandary with respect to how to collectively deal with the problems and opportunities, while maintaining national autonomy and flexibility in doing so (cf. Ruggie, 1975). Information asymmetries and tensions from other obligations emanating from separate bilateral and multilateral relationships meant that countries were also facing 'Prisoner's Dilemmas' (Schmidtchen, 1999; also Thomas, 2000).

In the Prisoner's Dilemma game, the optimal outcome for the entire group of participants results from cooperation of the participants, but is put in danger by the fact that the optimal outcome for each individual is to not cooperate while the others do cooperate. In this case, countries thus also face a 'fallacy of composition' which masks the competition that exists between them for different resources and international attention, in the hope for reciprocity from those they are favouring (Sayer, 1995: 19; also Dobbin *et al*, 2007). This competition may also result in the phenomenon of 'race to the bottom' which Schram and Beer (1999) explain as

> implying *'that [the] states compete with each other as each tries to underbid the others in lowering taxes, spending, regulation ... so as to make itself more attractive to outside financial interests or unattractive to unwanted outsiders. It can be opposed to the alternative metaphor of "laboratories of democracy." The laboratory metaphor implies a more sanguine federalism in which [states] use their authority and discretion to develop innovative and creative solutions to common problems which can be then adopted by other states"(page 1).*

Cross-national convergence of policies and regulatory systems had to overcome these tensions, and from a rationalist perspective of 'problems creating incentives for their own solutions' (Haas, 2004), the desire for convergence was seen as one of the responses to these tensions (cf. Bennett, 1991). The background was thus becoming the foreground, with the context not only shaping the work of policy makers, but having also become the target of the interventions by the organizations.

3.3   Interdisciplinary approach

It became clear after the analysis above, and as presented earlier about the context, that this cross-national policy convergence study was highly interdisciplinary and would require not one, but various different approaches and methods to increase understanding and to adequately cover the different issues impacting on this policy arena. Klein and Newell (1997) define interdisciplinary study as 'a process of answering a question, solving a problem or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession'. This need to look beyond the subject-knowledge of a single discipline has also been recognized in many other disciplines, e.g. health care research and multicultural curriculum reform studies (Cornwell and Stoddard, 1994) among other areas. On the other hand, while cross-national policy convergence is an area of intense research by many scholars, notably political scientists and economists, the lack of consistent theoretical frameworks guiding the research has been bemoaned. This has been attributed partly to the varied nature of the researchers engaging in research on this issue, and their concentration to a large extent on finding empirical evidence to demonstrate convergence, at the expense of development of theoretical perspectives (Heichel *et al*, 2005). This presents a catch-22 situation for interdisciplinary research, in terms of this apparent poor return on contribution to theory development, yet in terms of explaining dynamics within the normative realm, this approach wields more power. Mark Considine (2005: vi) calls this desire to balance practice (policy) and theory walking 'a tightrope' for both practitioners and researchers. A deliberate choice was made to walk this tightrope in this research, recognizing that for the cross-national convergence of biosafety systems in the SADC, and as mentioned earlier, a number of theoretical perspectives could have ample potential to predict the emergence of convergence, to explain the processes going on as well as explain and shed some light on the

failures and successes of the efforts. To this end, this section looked at literatures explaining different mechanisms through which knowledge about policies, administrative arrangements and institutions could move across space and time as a first step towards unpacking the various other theoretical perspectives impinging on this issue. The aim was to look at both the predictive and explanatory power of the perspectives, and identifying the gaps that were there with respect to these two, and then informing the subsequent data gathering and interpretation stages. This review and analysis was guided by the research question which was seeking an understanding of how three supranational bodies were influencing the processes towards cross-national convergence of biosafety systems in the SADC region in the backdrop of the boundary crossings that had to be undertaken.

3.4   The question of policy convergence

Policy convergence has received a lot of attention in recent years, with most attention being on areas where rapid technological change is happening. Biotechnology is undoubtedly one of these rapidly growing technologies (Heichel *et al*, 2005; Bandelow, 2006). However, and as some authors have written, while accepting the policy problem posed by the technology, and that policy choices are constrained by the technology choice, it still remains to be seen how authoritative decisions towards similar policies are made in the face of all this (Weibust, 2007; Faria, 2002). It is argued that a technological imperative has to be avoided if objectivity is to be obtained (Levy, 1997; Jasanoff, 1987), also recognizing that countries learn differently from the technology using different mechanisms within their structures, usually with the objective of maximizing on their own beliefs (Meseguer, 2005). Already, for the SADC region, different subnational, national and regional positions on the technology's risks and potentials and how to deal with them abound.

As mentioned earlier, for this study, the limited research on cross-national convergence in the area of biotechnology policy in Sub-Saharan Africa (SSA) made demonstration of convergence a logical starting point, even in the backdrop of much of the literature on policy convergence being dominated by the focus on availing evidence for policy convergence as mentioned elsewhere. In addition, the study further explored the mechanisms and facilitating factors for convergence, organizing the research and data analysis around the three-factor conceptualization of Busch and Jorgens (2005).

There have been many classification schemes for the different mechanisms through which convergence occurs [e.g. Bennett (1991), Jordan (2005), Dolowitz and Marsh (2000), Seeliger (1996), Busch and Jorgens (2005), Rose, 2000, Drezner, 1991, Holzinger and Knill 2005a)]. In fact Rose (1991) talks about 'scholarly competition', and the 'marking of academic turf' in convergence research. However, a close analysis of the different classification schemes shows that they all invariably denote two broad characterizations of these mechanisms; one category based on voluntarism and the other on non-voluntarism. This is with respect to the choices available to policy actors across the countries in the adoption of the policy innovations from abroad. The non-voluntary characterizations can be further split into two; one cluster based on coercion of weaker recipients (e.g. countries, organizations or policy groups) by more powerful 'donors' or 'drivers' of policies to adopt policy innovations; and the other where countries have 'interdependence' which results in countries having no choice but to cooperate in order to deal with their collective development challenges. The latter cluster is what Busch and Jorgens (2005) describe as coercive imposition (see section 3.6.2), while others (cf. Bennett 1991) describe it as penetration. As Bennett explains, in this instance, 'countries are forced to conform to actions taken elsewhere

… e.g. through pressures from multinational companies seeking a common regulatory framework, or through the activities of international organisations seeking to force laggards to conform to the rules adopted by other members of the club'. Political and economic sanctions as well as other measures such as monopolization of information and expertise can also be used to coerce countries to conform to certain practices (Dobbin *et al*, 2007).

On the other hand, the voluntary mechanisms are characterized by free-willed and rational 'utilization of evidence about a programme or programmes from elsewhere and drawing lessons from that experience' (Dolowitz and Marsh, 2000). It can also happen through elite networking and growth of policy communities (e.g. Meseguer, 2005) both at national and cross-national levels. A number of studies have been conducted to investigate the prominent role of transnational knowledge networks (Yanacopulos 2005; Considine, 2005: 70) and they all emphasise the crucial role of shared histories and trust in facilitating effective knowledge transfer across the different boundaries (e.g. Considine, 2005: 45). It is also argued that such cases result from the existence of shared ideas amongst a relatively coherent and enduring network of elites engaging in regular interaction at the transnational level, and that these elites are 'bound by knowledge and expertise of a common policy problem and a shared concern for its regulation' (Levy, 1997). Bennett (1991) refers to these as transnational policy communities of experts and professionals that share their expertise and information and form common patterns of understanding regarding policy through regular interaction (international conferences, government delegations and sustained communication). The roles of the experts are not the same as emulation, as they involve a shared experience of learning about problems and the development of a common perspective or 'international policy culture' (Ikenberry, 1990: 89). In particular, experts and professionals potentially become a stronger

causal factor in convergence when they act as 'policy entrepreneurs', that is, 'people who seek to initiate dynamic policy change' (Mintrom, 1997: 739). A lot of these mechanisms were postulated to be at play within the biotechnology policy arena in the SADC, and this study sought to investigate their existence, and understand the technological and contextual factors that were facilitating the action of these mechanisms and the interplay between them, keenly tracing the influence of the three SNOs on these factors, and vice-versa. In particular, this study questions the assumptions of free-willed and rational learning among policy makers given the contentious biotechnology policy environment of the SADC region.

3.5 Supranational organizations as knowledge networks and nodes in innovation systems

The increasing role of supranational organizations and transnational knowledge networks in policy-making is widely recognized by many political scientists and policy researchers, their ostensible aim being to complement governments in dealing with increasingly complex governance issues (Hajer, 1995: 264; Yanacopulos, 2005; Cichowski, 2007). The SNOs bring many attributes to the policy arena, and they assume many capacities, including being sources of knowledge and expertise, political and financial clout, and legitimacy. They also increase bargaining power for individual states by increasing economies of scale. In this study, supranational organisations are recognised to be part of a 'network' of several interdependent actors involved in delivering services in the study region (cf. Stone, 2000; Mugabe, 2001). Among other functions, these networks are made up of organizations which need to exchange resources (for example, money, authority, information, expertise) to achieve their objectives, to maximize their influence over outcomes, and to avoid becoming dependent on other players in the game (Rhodes, 1997: xii). Of particular relevance to this

thesis, are the resources of knowledge, information and expertise which the three SNOs under focus bring. They act as knowledge organisations, performing such roles as information clearinghouses, initiating research and developing network infrastructure – starting newsletters, building data-bases, organising conferences, moderating e-dialogues and developing funding proposals on behalf of their members (Ambali[42] pers. comm., April 2007). By acting across national borders, supranational organisations enable actors to operate beyond their domestic context and their networks are thus the means by which organisations individually and in coalition can project their ideas into policy thinking across states and within global or regional fora (Stone, 2000). The SNOs and their networks are also recognised to be an organisational form with extraordinary capacities for innovation, managing risk, building trust, facilitating joint action and gathering information in a manner that flows around and between geographical, legal and institutional barriers (Stone, 2003), in this case putting them in an important position to help the resource-disadvantaged countries of the study region. When they include the active participation and involvement of decision-makers, as is the case within the three SNOs analysed by this research (NEPAD, 2006), they have even greater potential to influence policy. However, and as Stone (2000) observes, 'even without such political involvement, the norms, values and aspirations of networks can have significant impact on the climate of elite opinion and culture of public debate' (also Beach, 2005: 45). She further notes that 'the interaction of official decision-makers (politicians and bureaucrats) with relevant stakeholders and experts, helps to reinforce the credibility and legitimacy of network participants in the formulation and implementation of policy'. These dynamics were at play in the SADC region, and how they influenced the desire for cross-national policy convergence was of interest for this study. Literature on

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[42] Prof Aggrey Ambali, Director African Biological Sciences Initiative in the NEPAD Office of Science and Technology

networks was thus seen as crucial in providing some explanation of how and to what effect knowledge and information about policy practices in one context was transmitted. These literatures also provided tools for assessing whether convergence took place for reasons that were reactive or purely pragmatic or whether it was ideological or epistemic, and this would be crucial when other sectors have to learn from the developments in the biosafety arena.

3.6 The Busch and Jorgens Typology

As mentioned elsewhere, the typology by Busch and Jorgens (2005) is recognised as one of the more systematic typologies for explaining convergence (Weibust, 2007: Lehtonen, 2006), not least for their endeavour to look at multiple mechanisms within a given context, but also for the broad range of factors covered by the mechanisms. This typology builds on conceptualisations developed by others; for example Bennett (1991) identified four causes of convergence as emulation, harmonisation, elite networking and policy communities, and penetration, and these all fall into the three categories espoused by Busch and Jorgens. An elaboration is given below on the three mechanisms constituting this typology.

3.6.1 Harmonisation

Harmonisation involves negotiation, legislation, compliance and enforcement, and is said to promote convergence as a consequence of political recognition of interdependence and awareness of the costs of divergence (Stone, 1999). It is accepted to be a largely state-centred, multilateral process involving negotiations among sovereign states, and that policies are agreed on and formulated at this multilateral level before domestic implementation and compliance (Lehtonen, 2006). Harmonisation therefore involves some sacrifice of national autonomy and sovereignty (Stone, 2000). While participation in the multilateral discussions

and policy formulation was voluntary, once an agreement was in place, and countries had become party to it, there was limited choice in adoption of the policy proposals. Parties would be under obligation to comply, and would be seen to do so through monitoring and enforcement mechanisms enshrined in some independent institutions (Busch and Jorgens, 2005; Evans & Davies 1999). Among many proponents, harmonised positions were believed to be promoted and sustained by supranational institutions, for example the EU (see Stone, 2000). Likewise, international regimes which are sets of similar norms and principles, rules and decision-making procedures around which actor expectations converge, could also lead to harmonisation, through availing a platform to avoid discrepancies in policies or to duplicate effort (Hasenclever *et al*, 2000).

The criticisms of harmonisation, apart from the challenge on national policy autonomy (Stone, 2000), include the problem of countries failing to meet their obligations for reasons beyond their control, and the limited deterrents for failing to comply. For example, countries in Africa perennially face technological and regulatory capacity challenges in the area of biosafety, and these are sometimes not addressed by the policy mechanisms to which countries become parties. Still in some cases, countries fail to access opportunities to build capacities because of lack of institutional mechanisms to access the opportunities (Ushewokunze-Obatolu, 2005). In the SADC region, and as mentioned earlier, harmonisation of biosafety systems has been the subject of many policy agendas at various levels for as long as the biotechnology debate has been alive. How this mechanism could be operationalised with the facilitation of the three SNOs was of interest for this research.

3.6.2 Imposition

When countries adopt policy proposals which they would not have adopted in the absence of pressure from external actors, coercive imposition or coercion is described as having taken place. There are different mechanisms through which the coercion may take place, and, as mentioned earlier, these could be political, technological, social or economic pressures, and monopolisation of knowledge and expertise, among others. The actions of international organisations have also been identified to result in countries adopting policies and programmes they would otherwise not have adopted (Biersteker, 1992: 110). For example, it is contended that 'much of the diffusion to the poorer countries of the world is done through donor agencies, so that the adoptions could hardly be seen as rational or autonomous choices by governments' (Stone, 2000). The position of the World Bank and the International Monetary Fund (IMF) has been: 'no reform, no money' (Dobbin *et al*, 2007, see also Larmour 2001). This leaves little room for local choice among the recipient countries. Unlike in cases of harmonisation where countries have a collective motivation to deal with the unfavourable externalities, in imposition, there may be two distinct groups, with different motivations for the policy innovation under focus (Dolowitz and Marsh, 2000); those on whom the policies are being imposed are one group, and their motivations may be distinct from those who are imposing the policies, who constitute the other group. The former may have varying capacities and motivations for rejecting the policy proposals, and this will depend on the conditionality being applied, and how the recipient country feels it will fare in the event of accepting or rejecting the proposals (Stone, 2000). The imposing countries, on the other hand may be genuinely trying to help, but seeing the need to apply some force, or may simply be intending to spread their policy principles and values as a way of exhibiting their influence on the global terrain (Busch and Jorgens, 2005; Radaelli, 2000). As will be detailed later, the

existence of various coercive practices on the policy processes in the SADC region was repeatedly mentioned by many stakeholders to be a permanent feature of the policy terrain. The sources of the coercion were many, and could well include some players whose primary aim was to help the governments and policy actors in the region, e.g. the three SNOs. The same players were also providing leverage for policy actors to deal with coercive practices from other sources. This study sought to understand the roles of the three SNOs around these various contradictions.

3.6.3 Diffusion

Diffusion entails voluntarism on the part of the receiving countries. The diffusion literature suggests that policy percolates or diffuses gradually over an extended period of time. There is an emphasis of the spreading, dispersion and dissemination of ideas or practices from a common source or point of origin. According to Freeman and Tester (1996) this perspective posits gradual changes in policy with the advancement of knowledge and awareness as well as interdependence, but unlike harmonisation, there is no obligation surrounding the interdependence. Diffusion approaches pay more attention on the process and the conditions for increase in policy similarity rather than the content of new policies (Stone, 2000). Admittedly, there are different ways through which the policy innovations can diffuse across countries, notably learning, copying and emulation (Busch and Jorgens, 2005). Countries emulate, copy or learn from other countries for a number of reasons, including the rationalist motivation of looking for effective solutions even beyond one's national borders. Desires to conform, or to gain legitimacy may also persuade countries to learn from others; the so-called identity-related motivations (see Keck and Sikkink, 1998, Busch and Jorgens, 2005). Diffusion is said to have an apolitical and neutral character (Peters, 2000), with a focus often

limited to broad historical, spatial and socio-economic reasons for a *pattern* of policy adoption (Freeman & Tester, 1996) neglecting political and other context-inherent dynamics involved. For this study and for biosafety issues in general, the need to assess the impact of these contextual dynamics was apparent because of the way technical and socio-political issues have become interwoven as actors jostle to position themselves to effectively deal with the policy challenge (cf. Harsh, 2008: 244). Meanwhile, a resurgence of interest in the field of diffusion in the 1990s, largely investigating effects of globalisation, brought with it a proliferation of labels. Lesson-drawing (Rose, 1991), 'policy band-wagoning' (Ikenberry, 1990), 'policy borrowing' (Cox, 1999) or 'policy shopping' (Freeman and Tester, 1996), 'benchmarking' (e.g. Papaioannou *et al*, 2006) and 'systematically pinching ideas' (Schneider & Ingram, 1988) are some of the terms used, and they are all voluntaristic in nature. This research was consistently on the look-out for these labels, with the aim of understanding how the three SNOs were dealing with the issues as they assisted countries to deal with regulatory challenges and opportunities at the cross-national level.

3.6.4   Utility of the typology

As described above, among other differences, these three classes of mechanisms are distinct with regard to their mode of operation, the principal motivations of policy makers to adopt policies and the leeway they grant national policy makers to influence the content and independently decide on the adoption of a policy or regulatory system (Busch and Jorgens, 2005). Examining everyday constructions of the convergence issues, and observation of policy processes, the three classes of mechanisms were seen to capture the range of options and forces facing the countries of the study region in their quest for a transnational governance framework for biosafety, and the aim was to understand how the SNOs were

innovating around the context through use of these mechanisms. Therefore, the typology of Busch and Jorgens was chosen for its ability to serve both cognitive purposes and systematic analysis of policy convergence using a combination of mechanisms. Most of the research on convergence is currently limited to analysis of single mechanisms (Heichel *et al*, 2005, Bennett 1991 and Drezner, 2001).

The management of biotechnology is an area that is inherently multi-level and multi-actor, even within individual jurisdictions, thus there are bound to be multiple mechanisms shaping the convergence efforts, separately or in various forms of interaction through space and time. This study aimed to interrogate the utility of this typology with respect to explanation of cross-national convergence of biosafety systems in the SADC region by assessing how the approaches used by the three supranational bodies mentioned could best be described within this typology, including whether or not it was by design that a particular mechanism was at play. In addition to the mechanisms, the study also investigated (as much as was allowed by the bounded time of the study) the sub-national, national, and cross-national factors which facilitated the operation of a particular mechanism. Salient features of episodes or significant events (e.g. continental or regional policy directives, government decrees and others), the national and cross-national context, and their impact on policy convergence were also investigated, and the empirical evidence on these is presented and analysed later in this thesis.

3.7 Measurement of convergence

Different definitions and reference points for assessing changes in policy similarity over time have been developed and used by researchers (Holzinger, 2006). These different definitions

and reference points may entail different interpretation of empirical results. The basic and main concept of convergence is sigma (σ) convergence, and it states that the degree of convergence increases with the extent to which policies of different countries become more similar over time. Sigma convergence measures the decrease in standard deviation between two points in time (say t1 and t2) using the coefficient of variation (Botcheva and Martin, 2001; Holzinger and Knill, 2005a). The main drawback with this notion of convergence is that coefficient of variation can only be used with metrical data, limiting the different aspects of convergence that can be measured and also imposing a restriction on the type of data that should be collected to satisfy this measurement.

The concept of beta (β)-convergence measures the extent to which laggard countries catch up with leader countries, implying a faster strengthening of regulatory systems among the former than the latter. This conception is in line with the basic argument of the absolute convergence thesis which states that, over time, all countries will become similar, predicting a slowing down in growth among leading countries and more rapid growth within the 'chasing pack'. This proposition assumes *ceteris paribus* with respect to factors such as technology, population growth, and savings propensity (Tinbergen, 1961). Gamma (γ) convergence on the other hand, is measured by the changes in country rankings with respect to a certain policy, while delta (δ) convergence measures the change in the distance of a given policy from a certain reference policy, e.g. that of the best-performing country in a given set (Heichel *et al*, 2005).

One of the recognised limitations for all the conceptions of convergence is the difficulty to unambiguously measure and rate policies, especially given the different policy measures

which may be part of a policy in different countries. On the other hand, convergence also suffers from saturation effects, where the level and speed/rate of convergence is affected by the extent of similarity at the beginning of the measurement period (Holzinger, 2006), and the level of enthusiasm with the issue over time (Meseguer, 2005). Thus, during the process, countries reach a point where they cannot converge any further, and this depends on a number of factors, including, as mentioned, how different they are at the beginning of measurement. It is thus feasible that measurement may start when countries have reached saturation point already, depending on the imperatives and aspirations of countries with respect to the convergence. These issues were certainly at play in the SADC region, and they are looked into and discussed further in the analysis of empirical findings from this study.

3.8   Explaining different responses

While convergence could have a cause that applies uniformly across countries (such as scientific knowledge), differences in response could not have the same uniform explanation. Holzinger and Knill (2005b) argue that the degree of convergence under the different mechanisms was affected by existing similarities among the adopters, such as culture and policy legacies. Institutional legacies were said to affect costs of adjustment; where higher costs predicted partial adoption of a policy (Holzinger and Knill, 2005a).

Holzinger and Knill have also written about the difficulty of determining the importance of one convergence mechanism over others in cases where two or more mechanisms were in operation in adoption of the same policy innovation. In fact, empirically, it is very difficult to isolate the effects of each mechanism from those of others, and in cases where two or more mechanisms were present and predicted the convergence outcome, their contribution had to

be recognized. They also further noted that one mechanism might be facilitating convergence in one setting, but inhibiting it in another. The interaction of the mechanisms with each other and with contextual factors thus not only made convergence an unpredictable process, but one whose trajectory could not be transferred from one context to another. With this recognition, this research looked at both driving and impeding factors around convergence of biosafety systems in the SADC as a response to the facilitation by the three SNOs and the other macro- and micro-contextual factors in the region.

It was also recognized that the three SNOs could well be acting as intermediaries for bigger modernizing forces, and this research sought to explore and isolate this possibility. Other researchers have explored this, for example, in their paper on Europeanisation[43] and globalization, Verdier and Breen (2001) admit that the debate was complicated, and that it was not clear whether the changes reflected global trends (globalization) or the forces at play were directly attributable to Europeanisation. Their research found evidence supporting the widely shared claim that the EU was an agent of globalization. Leifferink and Jordan (2002) also recognized the possibility of 'over-attributing outcomes to the EU' in their search for EU-induced convergence in national environmental policies. They opted for the empirical, inductive route to deal with this. This approach was also adopted by this study.

3.9   Studies on convergence – traditions, limitations and methodological challenges

According to Holzinger and Knill (2005a), the first studies in the area of cross-national policy convergence date back to the 1960's, although the topic itself gained further

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[43] Europeanisation is accepted to be a fashionable but contested concept with no single or stable meaning. In this thesis, this term is taken to mean 'the emergence, development and impacts of a European, institutionally-ordered system of governance' following Olsen, J P (2002) in '*Europeanisation – a fashionable term, but is it useful?,* ARENA Working Paper 01/02

popularity in the 1990s. The growth in international trade and commerce brought about by developments in technology in the last fifteen to twenty years – commonly referred to as globalization - has been mentioned as the major reason behind the increased interest in cross-national policy convergence studies (Faria, 2002). The 1990s also marked the period in which issues on European integration came to the fore, with a number of researchers investigating the domestic impact of the Europeanisation drive and cooperation of European countries on matters of biosafety, and also the 'transatlantic' issues (see Holzinger and Knill, 2005a; Murphy and Levidow, 2006; Wield *et al*, 2004).

Studies on policy convergence have been carried out in many policy areas, most extensive of all being on social policy, fiscal policy, environmental policy and trade policy. There have also been some, but fewer studies on health policy, migration policy, agricultural policy and education policy (Heichel *et al*, 2005). With respect to biotechnology and biosafety, some studies have examined harmonization in the EU (see Levidow *et al*, 1996, Bandelow, 2006), revealing a number of institutional, technological and political pressures influencing the envisaged policy outcomes.

In their review of empirical studies on policy convergence, Heichel *et al* 2005, also note that while the number of policy areas covered is fairly broad, a major limitation has been in the geographical regions covered by the studies. The majority of the studies have been carried out in Europe and North America, with very few being carried out in Latin America, Asia and Africa. They attribute this to lack of available data and also to the heightened interest in Europeanisation and globalization issues which are easier to examine in integrated markets. The authors acknowledge that it was 'still not possible to characterize convergence research as a global phenomenon because [researches on] Africa and Asia, for example are still

underrepresented …' (Heichel *et al*, 2005). Even some of the key people championing convergence efforts in Africa have acknowledged the lack of academic input in the various processes taking place (John Mugabe[44] pers comm., 2004). There was thus a need for processes towards convergence of biosafety systems in Africa to be studied and analyzed. This would enable fuller and more detailed insights into these processes and for empirical evidence from Africa to contribute to this growing field of convergence studies as well.

With respect to theoretical frameworks used, Heichel and his co-authors (2005) acknowledged that while there had been an increased interest in convergence research in the last two decades, there was a diversification in research design. They attributed this partly to the huge emphasis on finding evidence of convergence as opposed to theory building and partly to the heterogeneity of researchers and disciplines taking part in convergence research. They concluded that some work still needed to be done with respect to developing common ground in convergence research for 'research designs, concepts and operationalisations' (Heichel *et al*, 2005). By adopting and investigating the conceptual and practical utility of the three-factor conceptualization proposed by Busch and Jorgens, this study hoped to contribute towards the firming of theoretical perspectives around cross-national policy convergence. This approach also aimed to address the main limitation highlighted in current literature on convergence research which is that most of the work had focused on single mechanisms. The typology proposed by Busch and Jorgens looks at a combination of mechanisms and was used here to provide a framework to explain the ways in which the three supranational organizations and other players were influencing the cross-national policy convergence process. Lehtonen (2006) applied this typology to the environmental

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[44] Dr John Mugabe: Director/Advisor of the NEPAD Office of Science and Technology (2002 – 2008)

performance reviews (EPRs) carried out by the Organization for Economic Cooperation and Development (OECD) in its member countries. He found the typology useful and concluded that the mechanisms in operation, which were mainly social learning, socialization, persuasion and soft coercion, were dependent on the fact that the OECD was an organization without direct regulatory power; and also on the existence of environmental change agents in the member countries. Application of this typology in the SADC region on biosafety issues therefore should provide new insights, shaped by technological, organizational and socio-political contexts of the study region, among other factors.

The focus of most of the studies on gathering empirical evidence to demonstrate convergence at the expense of contributing to development of theories and the heterogeneity of the policy convergence research field have resulted in issues being looked at from diverse research and theoretical perspectives (Hozinger and Knill, 2005a; Heichel *et al,* 2005, Lenschow *et al*, 2005). This not only imposed restrictions on comparability of research findings, but also brought problems even in definitions and distinction of convergence from closely related terms such as policy transfer, policy diffusion and isomorphism (Seeliger, 1996). This research followed the thesis that these terms referred to some of the mechanisms towards attaining convergence (Stone, 2000; Dolowitz and Marsh, 2000; Heichel *et al*, 2005).

A number of methodological pitfalls, some based on how convergence is conceived, have also been identified (Holzinger, 2006), and, among other issues, was the fact that 'policy is a notoriously slippery concept, and a difficult one to operationalise and measure' (Considine, 2005: 1; Keating, 2005: 14; Karagiannis and Radaelli, 2007). Clarity was needed regarding whether one was dealing with a policy field or a policy measure within a policy field; and whether one was dealing with policy outputs (measures) or policy outcomes (effects). Data

for these different aspects are different, and have different availability levels, for example, data on policy outcomes is more easily accessible, but is also subject to varied interpretations (Holzinger, 2006).

Meanwhile, policy convergence, broadly defined as the growing similarity of policies over time (Kerr, 1983 and Knill 2005), reveals that convergence studies are concerned with the similarity of policies as an observable phenomenon. Scholars are in agreement that policy diffusion, transfer, learning, harmonization and others are pathways or mechanisms towards convergence, as alluded to earlier in this chapter (see also review by Heichel *et al*, 2005). However, it is acknowledged that convergence may be a result of other problem pressures and not necessarily the ones mentioned above (Knill 2005). In addition, similarity, which is the main concept fundamental to convergence research, is viewed as arbitrary and ambiguous. Sartori (1991) argues that being 'similar or different is a matter of degree and the cut off point can be set arbitrarily'. These ambiguities manifest themselves in many ways, including how the convergence can be achieved and how to define the convergence (cf. James and Lodge, 2003; Birner and Linacre, 2008). The methodology section details how these issues were dealt with in this study, because, 'whether a study finds convergence, divergence or persistence of original policies depends very much on the [clarity of the] measurement concept' (Holzinger, 2006; also Newmark, 2002).

3.10   Concluding remarks

This review of literature forms the basis on which the research methodology and data analysis for this research were done, and it sought to bring together various scholarly perspectives on how transnational governance measures emerge from contestations at various

levels. Other perspectives impacting on the various components of the research – individuals, organizations and countries, are also considered in the methodology and the analysis chapters. The focus of the research, as guided by the research question, revealed a number of areas which the research locks into. The research was looking at transnational governance of biotechnology; streamlining the focus to a look at governance of the technology as organized by risk and by stakeholder expectations of benefits from the technology with the aim being to maximize the benefits and minimize the risks. Like any issue in which there are different actors, there are different interests, power and knowledge dynamics that come to the fore. Apart from individuals, the actors include the three organizations, and the others that they interact with in this issue at sub-national, national, regional and international levels. The countries themselves, especially the international relations between them, also bring a further perspective to the context, as do the technology itself and its regulation. These issues and more led to only a few of the multiple angles from which the research question could be illuminated, and for which relevant literatures were reviewed and presented. For the objectives set out for this study, these issues were seen as the most direct, in terms of their impact on how the organizations under spotlight were influencing the process, and while this was the case, reference was made, in discussion of key theories around each, to other key perspectives around each issue. The multilevel, multi-actor, multi-jurisdictional and other facets of the research issue make it inherently amenable to analysis using different theoretical perspectives. Further reference to all this will be made in the methodology and results analysis sections. The thesis proceeds now with a look at the methodology employed by the study and as shaped by the literature just reviewed.

CHAPTER 4   METHODOLOGY

'To be practically adequate, knowledge must grasp the differentiations of the world; we need a way of individuating objects, and of characterising their attributes and relationships. To be adequate for a specific purpose it [knowledge] must abstract from particular conditions, excluding those which have no significant effect in order to focus on those which do. Even where we are interested in wholes, we must select and abstract their constituents' (Sayer, 1992: 19).

4.0   Introduction

The literature reviewed and presented in the previous chapter served to situate, illuminate and unpack various ways of understanding the transnational governance mechanism for biosafety being pursued in the SADC within the broader literature on cross-national governance of technology, as dictated by the regional context. In particular, this research was looking at which of the three mechanisms; harmonisation, coercive imposition or diffusion of practices was in operation, and what factors, within the given contextual setting were facilitating the operation of a particular mechanism. This was but one of the many possible ways of looking at the research, but overall, the research was about the emerging governance framework, under the mediation of three supranational bodies, and within a loaded context of many potentially colliding technological and policy issues.

This chapter presents the methodology employed by this study; starting with the justification for the approaches used, followed by a coverage of the cases focused on by the research; the three supranational organisations and other policy actors in the SADC region and beyond. The criteria and justification for selection of the three cases are given, together with the strengths and limitations of the strategy. The chapter also addresses issues surrounding data selection, data sources, data collection, timing and data analysis; followed by ethical

considerations of the research, and finally practical issues related to the research; all linked to the main goal of the study which is to understand the ways through which the three supranational organisations have contributed to cross-national convergence of biosafety systems in the SADC region.

Box 2: Prelude – a recap on the context

Southern Africa is a subcontinent in which countries are grappling with processes to set up and implement national policy and regulatory systems for biotechnology. The countries are at different levels with utilisation of the technology, and are therefore experiencing different technological motivations and pressures for regulating the technology. In addition to the internal pressure generated by the technology and other national imperatives, countries are also experiencing pressure from external sources, such as the Cartagena Protocol on Biosafety which all the countries of the region are party to. There is also pressure from multinational companies in the biotechnology sector, and from the bilateral and multilateral arrangements to which the countries are party. All these and more operate differently in the different countries. There are also different players in the biotechnology/biosafety policy arenas across the countries, all making efforts to help countries develop the regulatory systems. Two broad classes of the sources of motivation for regulation of biotechnology at national and cross-national level have been identified: motivations based on regulation of the risks brought about by the technology; and motivations based on the desire for countries to have/enjoy benefits from the technology. The countries are on a continuum with respect to what is motivating them, with some being motivated primarily by the risk regulation thrust, while others are motivated more by the envisaged economic growth and other positives from deploying biotechnology.

Among the different players influencing the policy processes in the countries and the subcontinent are supranational organisations, one of whose targets is to influence cross-national similarity/convergence of the national policies across the region. Supranational organisations fall within the category which Maarten Hajer (1995:15) calls 'secondary policy-making institutions', and the objective of this study is to understand the ways in which these institutions influence the processes towards the desired cross-national convergence. The

study recognises that these organisations are only one of many other players championing this agenda, and one of the several challenges facing this research is to abstract/explicate the contributions of these organisations from the congested policy field.

4.1   Approaching the study

This research was motivated by the quote from Sayer (1992:19) given at the beginning of this chapter in trying to tackle the context given in the earlier chapters and recast in box 2 above. The starting point was an appreciation that the bigger desire from both academic and practical perspectives is to understand broadly how the convergence agenda is moving forward in the selected region. This is the 'whole' that is at stake, but from a feasibility point of view, and to enable an in-depth and more informative study, this research focused on the contribution made by supranational organisations to this 'whole'. However, in contradistinction from what is alluded to in the statement above, this abstraction is not motivated by the other conditions or players being of lesser significance, but purely for practical reasons and a recognition that the other players within this multi-player field have received both academic and policy attention at other stages within the spatio-temporal setting of the region (e.g. Scoones, 2002; 2005 and Newell, 2003).

4.1.1   Taking a realist approach

Biotechnology regulation falls within the risk regulation domain and it is an inherently multi-level and multi-actor policy field. The area is awash with conflict, and there are different motivations and cognitions behind the conflict. There are also many interests (including researcher's own) and contentions around the issue and it is in this background that a multi-method, reflexive approach was adopted (see box 3 below on dealing with my own interests

and prior knowledge). Overall, the methodology used was adaptive, as dictated by changes within this dynamic policy field.

Inspired by Andrew Sayer's reflections in the book *'Method in Social Science: A Realist Approach'*, this study was conducted from a realist perspective, acknowledging right from the start that 'facts of contested sorts exist', and that 'there are different arguments concerning the reality …' of the issue at stake.

There were many reasons behind adopting this approach; and some of them are presented and discussed below:

- Sayer argues that the quest for straight-forward causation and regularity has been fashionable, noting though that for social science, things may not always happen in neat packages. He further argues that there is so much preponderance with methods which assume that causation is a matter of regularities in relationships between events, and that without models of regularities, we are left with allegedly inferior, *'ad hoc'* narratives. For this study, it was clear right from the start that there would be no clear and straight-forward cause-effect relationships among the various issues impacting on the convergence agenda. The quest for regularity was thus replaced by an objective and constructivist approach that looked at the social relations around the issues as having causal powers which may, or may not produce regularities, and which can be explained independently of them. There was thus more emphasis on the qualitative social and discursive aspects around the issue, as opposed to the quantitative methods which tend to emphasise discovering and assessing regularities.

- As presented elsewhere, the reality of the situation with policy activities around biosafety systems in the SADC is that there are many processes happening at the same time and, unlike in a natural science setting, it is not easy practically to isolate out particular processes. Therefore while this study was looking primarily at the ways in which supranational organisations were influencing the convergence process, there was no way in which the processes mediated by the other players within the policy arena could be isolated completely. Thus an adaptive and robust approach able to deal with these realities, while maintaining a firm focus on the target organisations was deemed ideal.

- While this research inevitably relied on actor accounts and articulation of the issue, there was recognition that knowledge and facts around the issue were not limited to the spoken or written communications, but that it encompassed many kinds of activity and sources of knowledge all intricately linked to the issue. Thus a number of methods to access and understand the various bodies of knowledge around the issue were used. No source or body of knowledge was viewed as superior to the others. In all this, the study sought to balance between the practical and analytical aspects of the issues around the research. These issues are discussed further in the course of this chapter.

4.2   The research

The research was designed primarily as a case study of three organisations. The data collection methods were envisaged to be mainly use of a questionnaire, semi-structured interviews and document review, but as the research progressed, it emerged that close

observation of the processes through interaction with the various policy communities would be more effective in understanding the different opinions and cognitions around biosafety broadly and convergence specifically. Thus, when the opportunity for an internship at NEPAD arose, it presented a golden opportunity to be close to the activities, at least within the NEPAD setting (see section 4.6.1 {Data gathering, recording and storage} for more details). The day-by-day interaction between NEPAD and the other two organisations was also observed from this vantage position.

One of the aims of this research was to contribute to development and firming of theoretical perspectives for studying policy convergence, and the literature reviewed for this study alluded to this need. The research strategy employed by this study thus aimed to serve this dual purpose of availing empirical evidence on convergence, while contributing to the firming of theoretical perspectives on the theme, guided by the Bush and Jorgens typology. Therefore in addition to being able to extract data from the research terrain, the research design employed also had an emphasis on identifying and analysing strengths, weaknesses and options for the methodological choices made. Due to these dual and interrelated aims, and also because of the pervasive nature of the technology at the base of the research field being examined, a multi-method research approach had to be employed encompassing literature survey, in-depth case studies of the three organisations and interviews with researchers, policy makers and other key stakeholders from the region and beyond.

Box 3: Prior experience and reflexivity

Being a biotechnologist and working for 6 years (1999 – 2005) on biotechnology and biosafety issues in Zimbabwe and the southern African region brought me face to face with the challenges facing the entire cross-section of stakeholders in dealing with biotechnology issues broadly, and biosafety specifically. Embarking on the PhD studies was partly a result of wanting to make a difference in a 'territory' which I had become familiar with, and in

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which, from my perspective, the policy and regulation challenges and progress towards solutions were largely remaining the same. Territory here means the geographical area in which the study was conducted, (southern Africa) and the policy area (biotechnology/biosafety). Opportunities and challenges alike were spawned by this familiarity with the context, and some of these are presented here. It is also important to quickly note that in any research endeavor, familiarity with the context also builds up as one maintains contact with the research area, and these same dynamics may arise, but at a different time during the course of the research.

The **opportunities** brought about by my closeness to the context included my knowledge of some of the key individual and organizational players on the issue within the research terrain and beyond, a working knowledge of the status of issues, and knowledge of the various communication channels to reach the stakeholders. Some of the key stakeholders also knew me, and this meant we were starting from a position of trust, an aspect crucial for one to navigate through this dynamic and contentious research field.

The **challenges** started from issue framing where, because of the failure to detect any progress, some very ambitious research questions were started off with. However, further reading and assessment of what could be done within the available time and financial resources led to a streamlining of the research aims. Further challenges were experienced with development of the sampling frame, where knowledge of some respondents led to some 'contempt'[45] of what they could bring to the research. Some however, still had to be considered because of the important positions they occupied in their countries and organizations. How to present myself differently in the research context was another challenge, having been in the context in a different capacity before. Withdrawal from the context, and packaging the research issue in ways different from the everyday language of most policy operatives not only presented a new visage, but also prompted respondents to think in ways different from their everyday encounters with the research issues.

Knowledge of the context and the issues also brought frustrations in cases where I felt there was misrepresentation of facts, for example on the status of existing policies and

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[45] Used here to mean having limited belief that they could offer solutions to the challenges/problems at hand … e.g. because they could be part of the problem

programmes. The temptation to ask leading questions also had to be dealt with continuously, among other strategies, through rising to a level of objectivity and openness where answers were sought from current framings rather than prior knowledge. The temptation not to follow up on issues raised (on assumption that I knew what was being expressed) also had to be dealt with continuously. In some cases this consciousness escaped my attention, and gaps were seen in the data, and follow-up had to be made while the data was being analysed. For example, I realized as the study went on that the issues of capacity and capacity-building needed to be understood closely and in relation to each specific context.

In the final analysis knowledge of the context allowed me to navigate through the research terrain, in the majority of cases without needing ethical approval to access researchers and organizations; but under the sustained pressure of keeping in check my own biases in the development and implementation of methodologies, and in the data analysis.

4.3   Case selection criteria

The three supranational bodies were chosen firstly for the positions that they have all taken towards convergence of biosafety systems and in accordance with *the-most-different-systems* approach which assumes that the causes for a phenomenon [convergence in this case] can be best identified if it occurs equally in (as a result of) different settings [the three supranational bodies] (Przeworski and Teune, 1970, cited by Seeliger, 1996). Secondly, researchers within the area of cross-national policy convergence acknowledge that while there has been an increasing role for supranational organisations in cross-national policy process, the mechanisms through which they influence this convergence are not clearly known (Peterson, 2003). The selection and study of these three as specific cases was thus also aimed at contributing towards bridging this gap. Box 4 below presents brief descriptions on the organisations.

> **Box 4: The three organisations and their claims to cross-national cooperation**
>
> The three organisations are all different, and influence policy processes in the target countries at different levels and through different mechanisms. **The African Union** has historical links to its predecessor, the Organisation of African Unity, whose mandate was political solidarity among countries on the continent. The OAU championed a neoliberal political agenda, espousing respect for all countries, and recognition of the importance of the contribution of the various small 'pieces' towards the 'whole' of Africa. While lately more rigorous, and even then also championing economic integration of the continent, the pedigree of the AU is built around its political clout, dating back to the OAU. Even most of its structures reflect the representative political democracy reminiscent of most political systems.
>
> **The NEPAD**, on the other hand is an expert-driven socio-economic development framework for Africa, being essentially a programme of the AU. Because of its desire for a politics-free and more accountable development agenda, the NEPAD has sought to remove itself from the entrenched bureaucracy of the AU, and to present to the world and sympathisers a new development partnership that is not only neoliberal on paper, but in practice as well, and having unhindered efficiencies. NEPAD thus presents technical competence as its hallmark and trump card.
>
> **The SADC** is the regional economic community (REC) for 12 geographically contiguous countries of southern Africa and 2 Island States in the Indian Ocean. In addition to being the oldest among the three organisations, SADC brings closer home the shared political and economic realities and dreams of these neighbouring countries. SADC on paper embodies both the political clout, through offering a framework much closer to the countries' realities, and an opportunity for the countries to pool and utilise their technical expertise together. SADC thus serves as both a rallying point (being the community), and a platform for solving the development challenges of the region. It presents both technical and political authority.

The SADC region was chosen following a realisation that while there have been studies and analyses of issues around of policy and regulatory practices on some aspects of agricultural biotechnology and allied areas (e.g. Ayele 2007, Clark *et al*, 2005) there have not been any

detailed academic studies on convergence of biosafety systems in this region. The region was thus selected on this basis, and also in accordance with *the-most-similar-systems* approach, which assumes that a given policy problem and response [in this case convergence] should be observed in similar countries [the SADC countries] (Lijphart, 1971, cited by Seeliger, 1976). Further, the issue of cross-national convergence of biosafety systems falls into the regional cooperation and integration agenda being pursued on the continent within the framework of the AU treaty, and looking into this issue will shed light into the feasibility and extent of regional cooperation on technical and other issues.

4.4   Limitations

Critics of the case study method believe that the study of a small number of cases can offer no grounds for establishing reliability or generality of findings. Others feel that the intense exposure to study of the case biases the findings. Some dismiss case study research as useful only as an exploratory tool. Yet, like other researchers in the social sciences, this approach was found useful for this study because it allowed an in depth, carefully planned and crafted analysis of real-life situations, issues, and problems around biosafety within the three organisations and the region. The flexibility to use different data gathering methods also proved useful for this research as it allowed access to different stakeholders and data sources (Yin, 1994: 45). Furthermore, the pervasive and far-reaching political, economic and social influence of the selected organisations mean the results of an analysis of their activities are likely to have wide impact, putting paid to the limited generalisability which affects studies in which limited cases are used (cf. Silverman, 2005: 134; also Miller and Dingwall (1997: 67).

4.5   Research population and sampling strategies

Defining the target population for this study was no mean task because of the multi-level and multi-actor nature of the biotechnology policy arena. There are multiple individual, organisational, sectoral, national, regional and international interests, all varying in space and time, and which confound the task. The research population was therefore a heterogeneous one, comprising of policy makers and regulators, scientists/researchers, NGOs, policy consultants, actors in the three supranational organisations and allied institutions; and others with special interest in cross-national regulation of biotechnology.

These multiple data sources were investigated by the research because of the different levels on which they have an impact, and at which the study issue has an impact. However, primary data sources were workers/staff in the three supranational organisations working on biotechnology/biosafety or allied issues, as well as documents and processes from these organisations on these same issues, and staff in national organisations tasked with regulation of biotechnology. In particular, national-level stakeholders were important as part of establishing the link between the three bodies and the national-level processes. Participants were also enrolled from other regional and international organisations, as well as policy makers and consultants and policy analysts or researchers or advisers working on these issues. While in all cases senior level policy makers or other personnel directly involved with policy making and decision making were the primary respondents, stakeholders at other levels were also engaged, as a way of triangulating issues, and also to broaden coverage of the policy area.

The multiplicity of interests and stakeholders in the issue made it impossible for a sampling framing (exhaustive listing of all elements making up the research population) to be compiled

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(cf. Worcester and Basanez, 2000). Probability sampling techniques could thus not be employed in coming up with the specific members of the study population to use as respondents in the study. A combination of two non-probability sampling techniques was used; encompassing convenience sampling and chain-referral (snowball) sampling (e.g Flyvbjerg, 2004: 427). Convenience samples are built on finding convenient or available individuals, and my familiarity with the research context facilitated this process. A list of contacts already available was the starting point, and this also led to Snowball sampling, where these individuals who were contacted were then asked for suggestions on who else could be included in the study. The processes were repeated on an on-going basis until a satisfactory sample in terms of size and representation of key issues was achieved. The approaches used proved handy in constructing the actor coalitions and linkages around stakeholders, aspects which are important in the information and knowledge flows around the study issue. The limitations of these sampling approaches, especially in cases of 'lone' or 'poorly networked' individuals were recognised, and the researcher used his knowledge and that of the other respondents as much as possible to 'fish out' these 'loners'. An emphasis on groupings of interests as opposed to specific individuals also helped in this regard.

Table 5 below and the pie chart that follows give a full breakdown of the categories of stakeholders who participated in the research and their location. Full details which include coded identities of individual respondents and when they participated in the study are given in Appendix 3.

Table 5: Categories of stakeholders who participated[46] in the study and their geographical location

Stakeholder Category	LOCATION			Totals
	SNO	Countries	Outside region	
Scientists	5	9	1	**15**
Policymakers or regulators or government employees	5	11	0	**16**
Media	1	2	1	**4**
NGO Staff	0	4	4	**8**
Consultants/Researchers	1	4	8	**13**
Totals	**12**	**29**	**14**	**56**[47]
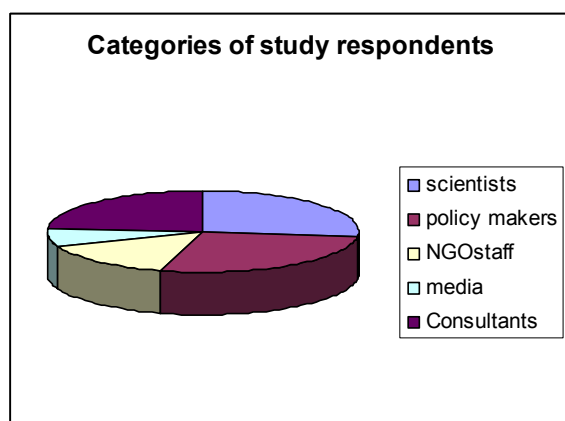
Fig 1: A pictorial representation of the numbers of respondents by category

Among some of the problems experienced (and detailed in the next chapter) were that some

potential respondents did not respond, even after indicating they would respond. Familiarity

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[46] Participation meaning responding to questionnaires 1 and 2 or giving input through formal or informal interactions (coded as 3) – see Appendix 3 for further details

[47] These 56 are out of a total of 68 individual participants contacted at one stage or another throughout the data collection period between March 2006 and August 2007. Other statistics: 20 respondents participated in the pilot study; and 25 of the 68 (36.8%) completed the second questionnaire, 11 interacted with the project throughout, while 47 of the 56 were interacted with formally and/or informally, i.e., beyond use of the questionnaires. Appendix 3 gives further details.

with the researcher seemed to make it difficult for some respondents to indicate

unwillingness to participate in the research, though it would in some cases turn out that they

were not able to participate.

4.6 Research instrument

Two sets of questionnaires were used as the main research instruments for this study. The questionnaire or checklist used at the beginning of the study consisted of broad, open-ended questions which were aimed at identifying and mapping the key issues around the research topic. Design of this questionnaire (included as Appendix 1) was based on my prior experience in the geographical and policy area targeted by the research, and guided by literature surveys within the area of biotechnology regulation broadly and cross-national policy convergence specifically. The second questionnaire (Appendix 2) raised questions and traced perspectives pursuant to issues emerging from the first round of the data gathering process and review of relevant literature. The data gathered in the first exercise had brought out the policy and technology context within which the development of similar systems for cross-national regulation of biotechnology was taking place in southern Africa. The second exercise had a particular emphasis on assessing the feasibility of convergence and understanding the roles being played by the AU, NEPAD and SADC within this context. The questionnaire was pre-coded and had multi-response questions in order to facilitate categorization and comparison of responses.

4.6.1 Data gathering, recording and storage

Pilot interviews guided by the broad checklist of questions were conducted telephonically and through emails between March and June 2006. These were followed by face-to-face discussions with some stakeholders in Zimbabwe, South Africa and Botswana[48] during a field study between mid-July and mid-August 2006. After these pilot studies, which helped identify, confirm and shape key issues around cross-national convergence of biosafety systems in the SADC, interviews guided by the semi-structured, open, and close-ended questionnaire and participant observation were the main techniques for gathering primary information from the targeted actors. This was done between October 2006 and August 2007. Secondary data review was also extensively used, covering documents such as strategic plans, programme proposals, policy statements/reviews/recommendations, agendas and reports of meetings and other relevant documents produced by the three organisations and the countries in the region.

Direct interaction with stakeholders in the SADC region turned out to be one of the key steps towards gathering empirical evidence to address the key research question and the other questions that the study was pausing. Thus, an ethnographic/participant observation approach was adopted in the meetings and workshops that were attended during the data gathering period, and during the 3-month internship held at the NEPAD Office of Science and Technology in Pretoria, South Africa over the period April to August 2007. Full details on how participant observation was employed in this study are given in Box 5 below.

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[48] The three were chosen for allowing access to a wide range of national and regional stakeholders; and also to capture a representative cross-section of status and opinion on biotech/biosafety

Box 5: *In situ* observation of processes

It emerged as the research progressed that employing different methods of obtaining data would be more beneficial for the research given the different data sources available. The reliance on structured methodologies was also seen to have the limitation of failing to reveal some of the hidden discussions and meanings, and the best way was to observe these processes as they were happening (cf. Silverman, 2005: 26; Fife, 2005: 1). The aim was to obtain data from the 'natural setting' of the phenomenon, through immersing myself in the social setting of the research as a way of obtaining knowledge. The approach used thus aimed to look beyond the formalistic and broad features of organisational structure, as this tends to screen out culture-related variation found in the way these broad features are operationalised day to day. The aim was thus to observe and understand the actions of policy actors as they went through their routines in workshops, meetings, daily office-to-office interactions and other platforms in which biosafety issues are discussed. In addition to moving beyond the formalistic approach, participant observation was also considered following realisation of the tendency by respondents to 'recycle' the responses that they gave in other studies on these issues, even when they were not the best for the issue at hand. Some participants had pointed out their 'exhaustion' from the issue as a result of the high number of studies in the region covering the same or allied issues. To them, 'biosafety was just biosafety', and often they did not consider the differences in the aims of the different studies. It was also further observed during the pilot interaction that sometimes out of sheer ignorance due to the complexity of the issues at hand, and sometimes for other reasons (as will be discussed elsewhere in this thesis), there were incidences of misrepresentation of what was happening on the ground by some respondents. Getting reliable data in such situations was therefore seen to be more likely only through an observation of the on-going processes. The participant observation happened in tandem with the other data-collection methods employed by this research

The challenge was always going to be on the level of involvement in the context, in particular ensuring little interference with the research context. Some background work had to be done on how best to fit into the setting, without disturbing the naturalness of the setting. A **participant-as-observer** approach was adopted (Fife, 2005: 71), in which I was completely open about my research and got myself actively involved with activities in the NEPAD Office of Science and Technology. This was part of the requirements for the internship which provided the opportunity for the participant observations. My prior experience and familiarity

with the context helped in this blending, and also eased potential problems of accessing the setting. Obtaining prior participant consent was seen by most respondents as unnecessary because of the open approach, and also because of the prior interaction I had had with many of the respondents. However, due diligence was taken to ensure the research was conducted ethically, without occasioning any harm to individuals and organisations. One key approach was the maintenance of confidentiality, and where issues had been raised in plenary discussions, follow-up was made with concerned individuals seeking their consent to quote them.

During the participant observation process and semi-structured interviews, field notes were lodged into a notebook, and audio recordings made. These were then transcribed into a data transcript with relevant details for each data set, e.g. date of interview, interviewee identification, location of interview, activity taking place and contact details of respondent/event organiser (where possible).

A number of communication channels were employed in accessing the various data sources, and these included use of electronic mail, telephonic communication, visits and face-to-face discussions. The different communication channels were used as appropriate in initiating or maintaining contact or following up on specific issues.

Interviews were on average one hour long, making a total of approximately 56 hours interview time for the total number of respondents engaged during the main data gathering phase of the project between May 2006 and August 2007. The longest interaction was a two-and-a-half hour interview with a key actor in one of the SNOs [Pmk1 (S), Jul 2006], and the shortest was a 10-minute discussion with a science journalist [Med2 (R), Oct 2006], whose main message was that as gatherers and disseminators of information, their interest was to get the issues emerging from the study once they were ready for spreading.

In the data gathering activities, data was captured through note-taking during interviews, direct recordings on questionnaires by respondents, digital audio recording, and email responses that were saved in dedicated folders. On an ongoing basis, all materials were lodged into a research journal.

4.6.2 Challenges and realities

Among the challenges faced was the time-consuming exercise of making repeated follow-up to get responses from some of the respondents, and in some cases failing to get responses even after concerted follow-up. Policy makers were most difficult to get responses from; for some because of preoccupation with challenges in other policy areas, and for others, because of 'fatigue'[49] with the biosafety issues. On the other hand, responses were received at different times, and this presented a challenge on consistency and comparability of responses. The impact of these challenges was taken into consideration in the data analysis and interpretation of results. More details on the contextual challenges and realities are presented in Chapter 5.

4.7 Data analysis methodology

The aim of data analysis for this research, and indeed for any other research process, was to unlock as much value as possible from the data in a way that increased the plausibility of the findings. To this end, this research employed an analysis approach firmly embedded in the data. As indicated elsewhere in the document, though this study was designed to reveal both quantitative and qualitative aspects around this issue, it was largely a qualitative research process. There was thus more emphasis on opinions and perceptions, rather than the

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[49]Exhaustion and fatigue … referring to how they spend a lot of time talking to different researchers and stakeholders on these and allied issues

numerical differences between the responses from different respondents. However, because the results of the process are intended for consumption by readers of both qualitative and quantitative 'persuasions', a robust way of organizing and presenting the results had to be employed. The varied nature of the data in terms of perspectives, opinions and other dimensions meant that the analysis framework did not only need to be embedded in the data, but also had to be able to bridge and bring together many areas. **Thematic analysis** was thus chosen, for being able to allow and facilitate communication with a broad audience of other scholars and researchers, and for bringing the different data categories together.

4.7.1   Thematic analysis

Thematic analysis can be defined as the interpretation of qualitative data through organizing it into codes, categories and themes (Boyatzis, 1998: 18). Themes, which are patterns found in the data, may be generated inductively from the raw data, or deductively from theory and prior research. Thematic analysis is a systematic way of working with information that increases the accuracy and sensitivity in understanding and interpreting observations. According to Boyatzis (1998: 15), 'thematic analysis can assist in communication between positivistic science and interpretive science, between testers of ideas and developers of ideas, between builders of theories and social constructionists'. This makes it an ideal approach for translating methods and results into forms accessible to others from different fields, orientations or traditions of inquiry, and for this research, this could not have been more appropriate given one of the underlying desires which was to bridge research and policy. In addition, biosafety is a cross-cutting undertaking, and the need for a robust analytic framework was therefore imperative. This approach was also useful in all stages of the

research; from the early stages of the inquiry where it helped organize thoughts and emerging issues, to the interpretation stages, where it served as a guide for the emerging research story.

One of the issues that lead to effective thematic analysis is knowledge of the arena being examined (Boyatzis, 1998; 19). This facilitates perceiving and making sense of patterns in the study context, without getting overwhelmed by emerging issues or chasing cosmetic agendas. This was a unique strength of the researcher, being one with intimate knowledge of the region and the technology being studied.

4.7.2   The coding and analysis process

Extracting and analyzing emerging themes, categories and codes from the data was an on-going process throughout the research. Notes from the various data gathering processes which included interviews, literature reviews and observations were typed out and compiled into a data transcript, which totalled 100 pages of double-spaced text in the end. In making sense of this mass of data, themes were extracted continuously from the data, guided mainly by the research question, and also by the theoretical framework used. Categories for the various themes started to emerge, with some being reinforced as more data was gathered, and others disappearing, or being merged with others as the process went on. Data inspection was used to identify the occurrence and frequency of issues from the interviews, observations or reviews of relevant literature. The emerging issues and themes were compiled in a spreadsheet to facilitate data sorting and to bring out any visual patterns that could be narrated from the data. The ensuing results analysis chapters are each built around the emerging themes.

Awareness/familiarity with the context was very helpful in coming up with the categories, and it was clear that some issues might have remained invisible with less knowledge of the context. Organizing the issues into working categories on an on-going basis also helped in enhancing my capacity to remember issues, and to make the necessary follow-up and seek clarifications from stakeholders on the emerging categories. In addition to the clarity, the organization also helped in the firming and/or disintegration of the categories. The on-going process was also used to bring similar ideas into close proximity, fostering further discrimination and bringing out patterns and minimizing interruption with unrelated information. Furthermore, the grouping was important in sparking recognition of hitherto unrecognized patterns. This data disambiguation was also crucial in ensuring that the correct perceptions are built from the data since 'context influences perception' (Kabay, 2003). For example, streamlining the data through categorization is also seen as a way of lightening the implementation load (Boyatzis, 1998: 17), as issues will have become clearer to the implementers. Relatedness among issues is brought out, helping in the formulation of joint solutions for related issues, for example helping in dealing with capacity shortages and other challenges.

4.7.3   Data-driven coding

Three distinct ways of developing a thematic code are recognized, viz; (a) theory-driven, (b) prior-data or prior-research drive, and (c) inductive (i.e. from the raw data) or data driven (Boyatzis, 1998: 17). The approaches are considered to be on a continuum from theory-driven, to data-driven approaches, each coming with its own benefits and challenges. The approaches all ultimately aim to arrive at theory development, but differ on the degree to which the analysis starts with theory or raw information. This study employed a data-driven

coding approach for many reasons, some of which emanated from the pilot interaction with respondents in the region. Some respondents had expressed reservation with what they called ''removed-from-context'' [Mtg 2, Nov 2006] packaging and presentation of the policy challenges being faced by the region. While they appreciated value-addition from analysis and interpretation of the status on the ground, they bemoaned what they called ''a lack of traceability, and disappearance of our circumstances into the preferred global context'' [Mtg2, Nov 2006]. This was said to have a negative impact on the likelihood of policy recommendations from such analyses being adopted by the region.

The research thus adopted a data-driven coding approach to address the concerns above, and also on realization of the 'near stagnation' *[own emphasis]* in the narratives around the issue within the region. It was therefore more than likely that different researchers, even when employing different methods, would emerge with more or less the same raw information. Developing codes from this raw information would thus yield consistent interpretations among many researchers. This results in increased interrater reliability, or consistency of judgment (Boyatzis, 1998: 19), a scenario which most policy makers prefer, especially in the resource-constrained region. The financial and time resources and technical capacities to pursue and reconcile different judgments are always scarce.

Working directly with the raw information also enhances appreciation of the information, in addition to eliminating intermediaries that could potentially contaminate or misalign the information. Some of these contaminants which can arise from theory- or prior-research driven codes include that the researcher will have accepted the other researcher's biases,

assumptions and projections. This research chose to avoid these contaminants by adopting an inductive approach, inspired by the data.

4.8   Ethical issues

Preliminary interaction with policy actors in the region at the beginning of the research revealed that, apart from requiring confidentiality in their contributions, most participants did not see the need for any further protection for their participation in the research. Interviewee consent forms were kept handy, but were hardly used. There were no further human subjects in the research, apart from the interviewees, and in the event of issues needing any special arrangements; a case-by-case approach was employed. Prior to embarking on the data gathering process, ethical approval and guidance was sought and obtained from the OU's Human Participants and Materials Ethics Committee. All responses will be kept confidential, and in file according to the requirements of the UK's Economic and Social Research Council.

4.9   Concluding remarks

This chapter has described the methodological approaches employed in obtaining and analysing data for this study, including the challenges and ethical issues faced by the researcher. The data gathering and analysis approaches employed all reflect a desire to adopt a holistic approach in dealing with this complex relationship between human actors, organisations and institutions within equally complex technological, regulatory and socio-political settings. The researcher was also walking a 'tight-rope' between practitioner and researcher interests, and this all shaped the methodological approaches. Selection of research participants and the various data-gathering methodologies were all meant to enhance access to reliable data from the many policy arenas in which the SNOs were exerting an influence in

the push to assist countries towards convergence. Following on from this presentation and discussion of methodological issues, the next chapter gives further details on the geographical, technological and organisational context surrounding the research, serving also as part of the results analysis for the research.

CHAPTER 5 STUDYING CROSS-NATIONAL CONVERGENCE OF BIOSAFETY SYSTEMS IN THE SADC: Regional and organisational contexts, challenges and realities

'What one people will accept and another reject, the way one community will prefer local solutions and another central control, all speak to [this] issue of the historical embeddedness of institutions. Policies and the laws they create sit within a multi-layered context of habits and bargains between rulers and the ruled, past and present' (Considine, 2005: 3-4).

5.0   Introduction

The burgeoning technological and regulatory context of the SADC has been shown to have a potential impact not only on feasibility of cross-national policy convergence, but also on the methodological approaches for accessing empirical evidence on the policy processes. This chapter seeks to further contextualise the research theme within the multiple and ever-changing policy, regulatory and technological realities of the study region, looking specifically at the three supranational organizations and the emerging institutional responses to the collective situation that the countries face. To achieve this, the chapter expands on some of the issues raised in all the previous chapters, focusing specifically on how the three organizations are positioning themselves to play a role in the governance challenge arising from a combination of the policy shock (the technology) and the receding regulatory response capacities of other players in the terrain, especially governments. The chapter begins with a general look at the political economy of Africa and the SADC region, zeroing in on the organizations and emerging institutions before then situating biotechnology and biosafety regulation issues within this burgeoning context. Reference will be made to broader science, technology and innovation issues and the attendant technological and regulatory challenges.

The methodological and theoretical challenges facing cross-national policy convergence studies were referred to in the first three chapters. Some principal causes of some of these challenges were presented, and these included the heterogeneity of researchers and their concentration on availing empirical evidence of convergence, as opposed to developing theoretical perspectives for this growing research area; and the lack of agreement on the preferred cross-national governance framework. In addition, there were other problems related, but not limited to the geographical and institutional terrain of Africa broadly and southern Africa specifically. Some of these are discussed in the second part of this chapter, both from the perspective of their impact on the results obtained, and equally importantly because in this research methodology was not only a means to obtaining results, but it was also one of the envisaged outputs of the study. This chapter draws on both empirical and published data, serving to bridge contextual, methodological and empirical issues.

5.1   Africa – in perpetual pursuit of development?

The continent of Africa lies largely in the southern hemisphere, and is home to about 922 million people (2005 estimate); with the population expected to rise to 1 billion by 2010 (United Nations, Department of Economic and Social Affairs, 2004)[50]. It stretches from Tunisia in the north to South Africa in the south, and also includes some islands in the Atlantic and Indian oceans. Africa is largely described as a poor continent, overall lagging behind the other continents with respect to gross-domestic product (GDP) and other economic development parameters (there are some exceptional countries within this characterization, and this brings contentions regarding the 'true Africa'). The burden of disease, hunger, poverty and other developmental challenges is heavy on the continent, and

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[50] "World Population Prospects: The 2004 Revision" United Nations (Department of Economic and Social Affairs) Population Division.

despite many generations of development and interventions generated from within, and from outside the continent, the problems still appear to outweigh the successes. For instance, almost half of the continent's population is said to live on less than 1US$ per day (NEPAD Framework Document, 2001). It is argued that among the key causes of this underdevelopment is the colonization of Africa by western powers in the 18th and 19th centuries, which led to resources being removed from the continent and used to develop other parts of the world. Political and scholarly debates still engage in these issues, including the impact of a development agenda in countries which is tied to former colonial masters (Shams, 2005; Economic Commission for Africa, 2006). The World Bank and International Monetary Fund-inspired structural adjustment programmes of the 1980s and 1990s are also blamed for creating untenable market structures through paying little attention to provision of social services. Whatever the reasons and the processes, the general consensus is that the continent is lagging behind, and most development paradigms frame issues from this perspective. Both within and outside the continent, the desire for Africa to take charge of her development aspirations and direction is a major agenda item. Global resources through different programmes are thus being channelled towards realizing this self-sufficiency dream[51].

Meanwhile, southern Africa, the focus of this study, is the southern subcontinent of Africa, and the SADC region specifically consists of 14 countries, with a combined population of about 240 million (SADC, 2008)[52]. Twelve of these countries occupy a geographically contiguous expanse of land, while 2 are island states in the Indian Ocean (see map below).

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[51] Commission for Africa report (2005), NEPAD framework document (2001)
[52] http://www.sadc.int/member_states/index.php (accessed 25 June 2008)
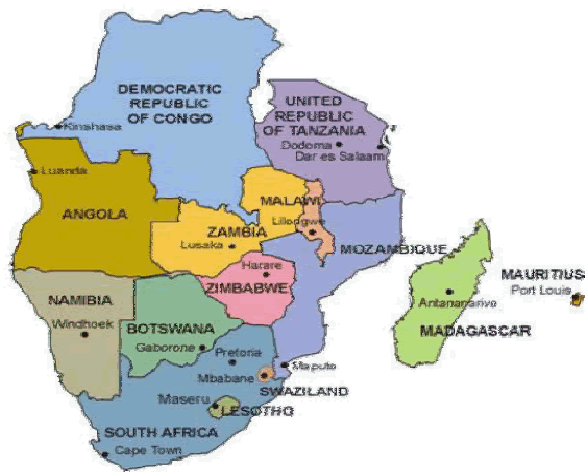
Figure 2: Map of the SADC region (picture courtesy of www.sadc.int)

In addition to facing the developmental challenges highlighted above for the mother continent and being part of some interventions that have been implemented at continental level, the SADC region has also had specific interventions spearheaded by the REC, clusters of countries or development partners with a special interest in the region (UNECA, 2006; SADC, 2001). With respect to biotechnology/biosafety, some of these were presented in the timeline (table 3) and other sections in the introductory chapter.

Cross-national collaboration efforts in agricultural research, science, technology and allied areas have happened in the SADC region for a number of years covering different issues and with different levels of success; for example the Southern African Centre for Cooperation in Agricultural Research and Training (SACCAR), the germplasm conservation efforts of the SADC Plant Genetic Resources Centre (SPGRC), the cross national cooperation in policy analysis through the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), the existence of trans-frontier national parks among some of the countries; and

many more (Ushewokunze-Obatolu, 2005; SADC, 2004). There are also a number of NGOs[53] operational in the region focusing on different aspects of science and technology, agriculture or biotech/biosafety activities specifically. With respect to biotechnology and biosafety, the region has had a number of initiatives since the 1990s (see Tables 1 and 3). As mentioned earlier, the impact of these interventions is varied across the countries and the reasons for this form part of stakeholders' arguments for or against cross-national convergence of regulatory systems for biosafety. The overall result is that these successes and failures are imprinted in the individual and institutional memories of the stakeholders in the region, and they play a big part in shaping the present-day responses. More empirical evidence and comments on this is given in Chapter 5.

5.1.1   Africa and the quest for regional integration

Since the early 1960s, the United Nations Economic Commission for Africa (UNECA) has encouraged African states to combine their economies into sub-regional markets that would ultimately form one Africa-wide economic union (ECA, 2006). Within the OAU, predecessor to the AU, various resolutions and declarations adopted by specifically the Summits in Algiers in September 1968, in Addis Ababa in August 1970 and May 1973, identified the need for the economic integration of the Continent as a pre-requisite for the realization of the objectives of the Organization (Shams, 2005). The quest for collaboration has thus been alive on the continent for many decades, and collective action dilemmas such as those presented by new technologies are seen as potential opportunities to push the regional integration momentum (De Waal, 2002). There are many challenges bedeviling the integration agenda from which lessons can be drawn for the cross-national convergence of biosafety systems.

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[53] e.g. AfricaBio, African Centre for Biosafety, RAEIN-Africa, among others

One such challenge is that there are more than 14 regional economic communities (RECs) of varying scope and design on the continent (Shams, 2005). The majority of the 53 countries on the continent belong to more than one of these RECs, some of which overlap geographically, yet may be pursuing different agendas, or the same agendas, but at different times (ECA, 2006). This creates multiple allegiances in the countries that are in such situations, putting further strain on the countries' already-constrained financial and human resource bases. Looking at the SADC for example, five of the 14 countries belong to the Southern African Customs Union (SACU); 9 belong to the Common Market for Eastern and Southern Africa (COMESA), with 2 of these 9 countries being among the 5 SACU member states. One SADC and COMESA member also belongs to the East African Community (EAC). There are more such overlaps, further complicating the maze of allegiances and obligations. Meanwhile, another challenge for the continental integration objective is that most of the RECs were formed before the AU, and established their systems without any working reference to the continental integration (Mkwezalamba and Chinyama, 2007). How easily they can realign their aspirations and development trajectories towards the continental direction is an intriguing empirical and theoretical contest (Shams, 2005, Ilorah, 2004). Similar issues also awaited the cross-national policy convergence agenda.

5.1.2   Cooperation in science and technology

A number of programmes and processes have been put in place on the continent to strengthen Africa's position with respect to harnessing and deploying science and technology broadly and biotechnology specifically, as explained elsewhere in this thesis. This has been inspired by challenges and also by the increasing global trend towards international cooperation in science and technology. Globalization and the increasing recognition of the benefits of

cooperation in science and technology are seen as some of the factors behind this increased cooperation (Mugabe, 2003). International agreements such as the Montreal Protocol (1987), the Convention on Biological Diversity (1992), Trade-related Aspects of Intellectual Property Rights (TRIPs); and many other recent agreements and treaties in environment, energy and regional integration all emphasise the importance of cooperation in science and technology. The Millennium Development Goals (MDGs) adopted at the turn of the century also emphasise use of, and cooperation in science and technology.

On the continent, the Constitution of the African Union and the NEPAD Framework Document[54] both have similar provisions on cooperation, and further develop institutional arrangements and programmes to operationalise these provisions. For example, in the AU Commission, which is the Secretariat of the Union, one of the key departments is that of Human Resources, Science and Technology (HRST)[55]. It is the HRST unit which houses the AU Biosafety Project[56], in addition to handling other science and technology matters. Meanwhile Article 21 of the treaty establishing the SADC notes the importance of cooperation in science and technology, and as of 2007, the SADC was developing a Protocol on Science, Technology and Innovation (STI). One of the objectives of this protocol is to 'promote the development and harmonisation of science, technology and innovation policies in the Region (i.e. SADC)' (Draft 2, SADC Protocol on Science, Technology and Innovation, July 2007). Within the SADC Secretariat, one of the four departments or units is that of Food, Agriculture and Natural Resources (FANR), and among other duties, it is tasked with 'coordination and harmonization of policies and programmes' in agriculture, natural

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[54] Ref: AU Constitutive Act (2000) and the NEPAD Framework Document (2001)
[55] Ref www.africa-union.org
[56] See table 3

resources, environment and allied areas. The FANR unit also oversees the activities of the SACBB[57] and other biotechnology/biosafety activities within the REC.

The NEPAD Framework Document states 'promotion of cross-border cooperation and connectivity' as one of its objectives in the Science and Technology Platforms sectoral priorities (NEPAD Framework Document, 2001). Operationalisation of this objective was realized through establishment of the NEPAD Office of Science and Technology (OST), the African Ministerial Council on Science and Technology (AMCOST) and the various technology development programmes and policy processes[58] implemented under these arrangements[59].

Provisions for cross-national cooperation in science and technology are also enshrined in national policy documents and agreements, for example in weather early-warning systems, health research (Chataway *et al*, 2007), agricultural research, information and communication technologies and other areas. Agreements and alliances to these ends exist with partners and countries in the region, elsewhere on the continent, and internationally (Mugabe, 2003, Juma and Serageldin, 2007, Clark *et al*, 2005). However, having the policy documents and agreements in place is one thing, and having operational cooperation is quite another (Sampson III, 1982), and cross-national convergence of biosafety systems is seen as one way of operationalising these cooperation desires; at least at the regulatory level. In this study, some respondents bemoaned what they termed the politicization of science, while others saw this as an opportunity for pushing towards the bigger regional integration. It may well be true that the politicization is unavoidable, as … according to Ernst Haas (cited by Ruggie,

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[57] See table 4
[58] See table 4
[59] www.nepad.org also, www.nepadst.org

1975)… 'when it comes to the international management of technology, there is a hole in the technology whole, one which can be filled only by introducing political purposes'. Overall, what these examples of programmes within the wider science and technology agenda show is that the desire for convergence of biosafety systems is a response embedded in existing practices in the region, and this was expected to have a bearing on the efforts around biosafety.

5.2   The biotechnology debate

As highlighted in the first two chapters, the biotechnology and biosafety debate on the African continent is alive, both in relation to the bigger global debate shaped around the Cartagena Protocol on Biosafety, and as influenced by Africa's geographical and socio-economic peculiarities. Key among these issues are: the economic and social importance of agriculture in Africa; the degree of food insecurity and poverty on the continent; the pressures exerted on natural resources by the continent's population with a view to satisfying food and nutritional needs; the vulnerable nature Africa's agriculture due to climate change, diseases and predators; the need to explore new ways of developing agriculture with a view to injecting a new lease of life into agricultural production in order to overcome food insecurity and alleviate poverty; the stake and importance of biotechnology in the development of Africa's agriculture to set in motion a growth and economic development process in countries; and all this while needing to protect biodiversity, the environment and human and animal health (Mnyulwa and Mugwagwa, 2005; NEPAD Framework Document, 2001, SADC Review, 2001).

These challenges form part of the context within which Africa's interest in the technology lies; and from an external point of view, multinational companies and developers of the

technology see Africa as a potential food market, and her largely underdeveloped agricultural systems as a testing ground for some of the nascent technologies; while the continent has obligations to meet MDGs on food security, poverty and others, and the technology is seen as having a great potential to contribute to this. The interplay between these issues results in biotechnology, and indeed any technology meant to address some of these challenges ceasing to be purely a technical issue, but one with added tensions as a result of the political and social dimensions (cf. Ruggie, 1975). The political dimension not only brings challenges; it is also seen as a necessary force in galvanizing the different interests in the practice, and in pushing the issue towards the appropriate decision-making levels.

This study focused more on regulation of biotechnology in the backdrop of its applications in agriculture and thus the examples cited both for interventions and challenges will draw mainly from this sector. This is because agriculture is the mainstay of economic activity in nearly all SADC member countries. Agriculture is a major source of foreign currency earnings and supplies food, thereby reducing hunger, ensuring social and political stability (Ushewokunze-Obatolu, 2005). Cross-reference will be made to other sectors, mainly to bring out the complexities and the intercalations between the different areas. Biotechnology has also been touted as a technology with a functional cross-cutting potential to bring different sectoral interests together (Bandelow, 2006) thus this context analysis, and the research broadly also looked at how far this had been feasible in the SADC region. Overall, it was within this context that the convergence agenda was being pursued, and among the many interests of this research was the search for an understanding of how the convergence would address or circumvent the context, and how the context facilitated or hindered convergence.

5.3   Abstracting the role of the SNOs

As presented earlier, the study of policy convergence is an area of extensive research in many fields, including, but not limited to international relations, sociology and political studies (Heichel *et al*, 2005). The main interest is to understand the mechanisms through which convergence happens, and the factors facilitating the action of these mechanisms. Convergence is about the growth in similarity of policies over time, and the assumption underlying convergence is that countries respond to the different modernizing forces by developing similar systems for managing the pressures. Various mechanisms, institutions and policy processes play different roles in the emergence of convergence, and this study looked at how three supranational organisations operating in Africa were influencing processes towards convergence of systems for cross-national management of biotechnology in the SADC region. As admitted earlier, the look at the roles of the three supranational bodies was an attempt to isolate just one component from a context littered with a multiplicity of players exerting different pressures, singly or in various combinations on the policy issue under focus. This abstraction attempt was thus a daunting one because of the intricate links and overlaps between the different players and the policy process they were trying to influence. On the other hand, the abstraction was crucial, because as Andrew Sayer notes on knowledge;

 … *'to be practically-adequate, knowledge must capture the differentiations of the world, and [to this end] … we need a way of individuating objects … even where we are interested in wholes, we must select and abstract their constituents' [page 19]*

Biotechnology and biosafety are inherently multi-level and multi-actor technology processes, and an attempt to abstract the role of SNOs faced many challenges from both conceptual and practical perspectives. The SNOs have multiple and complex actor coalitions around them,

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and these not only make the process of distilling the individual impacts of the SNOs difficult, but may also lead to a misalignment of their positions and the mechanisms through which they exert their influence on the countries (cf. Beach, 2005: 45). However, it is also true that these complications reflect the realities and challenges, not only for the organisations and the policy actors with whom they interact, but for the policy processes in general and the convergence agenda in particular. The study thus had to be conducted with these insights in mind.

The research interest in cross-national convergence of biosafety systems, as highlighted in the first chapter, was driven by a realization of the growth and persistence of discussions around harmonisation of biosafety systems in the SADC region, and on the African continent broadly since the late 1990s. These discussions were underpinned by the desire for regional cooperation and interaction, with biotechnology being seen as one avenue in which countries needed to cooperate in order to deal with the challenges and opportunities brought by the technology at a 'collective action' level. However, while these discussions were underway, there was no unanimity on the need for convergence and what form it should take, and the supranational organizations were said to have tried to elicit appropriate responses to deal with the situation. Their responses were not only about dealing with the immediate challenges, but strengthening their own responses to similar challenges and minimizing risks that may be occasioned to them (the organisations) as a result of engaging in efforts to deal with the policy challenge (cf. Rothstein, 2005 on institutional risk).

5.4   Organisational responses

This context and the national aspirations for convergence have elicited various responses, or institutional imaginings among many organisations, including the three supranational-organisations. They have positioned and portrayed themselves in ways they deem best to deal with the situation facing the countries and the region vis-a-vis the technology. This was all taking place within the context of the bigger mandates that these organisations had for regional integration, in addition to other areas of focus. The organisations claimed to embody institutionalisms that were best suited to dealing with the policy challenge and the context. According to institutional theorists (e.g. Scott, 2004), institutions emerge from coercive, mimetic or normative pressures which push them towards 'improved efficiency or a status of higher legitimacy'. Looking at the organisations and policy processes, some of the emerging institutional 'myths' towards these efficiency and legitimacy 'trappings' include being; responsive to needs, evidence-based, consultative, champions of an African agenda, learning organisations and humbling themselves as being 'only but part of networks of many equals'. They did not see themselves as being more important than the other players. However, these trappings were seen by others, especially those in NGOs as ways of wanting to portray a sense of belonging and relevance, while for the organisations, this reflected the best way to deal with the apparently inexorable and complex social and geopolitical context in which the technological and policy issues were being dealt with.

While all this was happening, there was a general feeling among some respondents from the civil society that not much had been done to endear the three bodies with the ordinary citizenry. For example, it was felt there was a glaring gap around explaining NEPAD's basic principles to citizens in the countries. According to respondents from the two other SNOs,

the NEPAD programme was designed to circumvent the purportedly unwieldy process of the African Union. These realities and tensions between the organizations painted a complex picture with respect to how they could work together without antagonizing each other in the policy space. Already, within the biosafety arena, it was clear that the organizations had contempt for each other's capacity to deliver. The following reflection from one key player in one of the SNOs summed up this mood

'Yes, I am on the technical committee for their Biosafety Project, but I do not bother myself to attend all the meetings because there is no progress there. There are too many anti-biotech activists in that group, and a lot of time is spent debating the pros and cons of biotechnology, an issue which we think is not core to the mission of the project' [Pmk2 (S), October 2006].

However, the other SNO sounded more optimistic and diplomatic about the relationship, as supported by the following statement made by a key player from this other SNO, when asked about the link between their Biosafety project and the biotechnology/biosafety activities in the other SNO:

'There is representation on our committee from the other SNO, and this is supposed to form the link between our two initiatives. However the problem we experience is that their representative does not attend meetings, and some of the obligations on which they are supposed to deliver are not met. However, we feel this is an adjustment phase, and things will normalize as the project progresses' [Pmk8 (S), Oct 2006)

The problem from the researcher's perspective was that there did not appear to be much time for the gelling expected to make things better for the project because at the time these reflections were made, the project was already halfway through its three-year mandate. The policy actors seemed confident an extension phase would be granted, but at this rate, there was no guarantee that in the extension things would work better. One factor supporting this was the entrenchment of this expression of contempt and tension within the institutions, which was only being manifested through the individuals. There may thus be no guarantee that things would change even in the event of individuals managing the programmes changing. It was clear from these exchanges that, 'while officials cannot be decomposed to the organizations they represent' (Chataway, 1992: 35), there were institutional factors that shaped the officials' perceptions and attitudes on policy processes and outcomes (Rothstein, 2002). There was thus need to look beyond the institutional setting to explore and understand the patterns brought about by the officials' interests and issue framings. In addition, it was evident that as much as they had positioned themselves to avail solutions to the collective-action dilemmas facing the countries, the SNOs were also bringing potentially diversionary attributes to the policy arena. For example, like the countries they were trying to assist, the SNOs also faced problems with respect to adequacy of financial, technological and policy resources to make sustainable and autonomous policy decisions.

5.5   Similarities, differences and clashes between the three organisations

Among some policy makers, there was a lot of excitement about the prospects NEPAD brought to the agenda for transforming Africa, and at the same time, there was a recognition in many other quarters that NEPAD was still very much work-in-progress, and the expectations needed to be lowered, especially given the daunting context within which the

framework was expected to work (Ilorah, 2004). Calls had thus been made for it to scale back and focus on issues from the realism dictated by the context. On the other hand, the big idea concept was seen as important for keeping NEPAD firmly on the agendas of international funders such as G8 and OECD countries. However, apart from the high expectations placed on NEPAD because of its high placing, there were also problems and potential conflicts with everything worthwhile going on in Africa being given the NEPAD label. This was for both success stories, and for drawbacks such as fraudulent elections which NEPAD was expected to make a comment on (De Waal, 2002). All this put undue pressure on the organization which was still very much in its infancy. And for biosafety, this put NEPAD on a collision course with some of the SNOs in the undeclared battle for recognition within the policy space.

Meanwhile, proponents consistently underscored that the only new thing about NEPAD was the political will behind the initiative. This was an important stance to take, especially if it could be reflected and if it could permeate the vertical and horizontal structures of the programme. However, on the ground, there was a huge focus on newness, and how NEPAD was divorced and removed from all that had been there before (contrast with Considine, 2005: 3-4). If it was political will only that was new, why was it not used to push or reinvigorate the existing programmes – a respondent from one of the SNOs asked [Pmk8 (S) Oct 2006]. From a theoretical point of view, this underscored again the need to look beyond structures, because actors learnt new patterns and interests, and these were reflected in the institutions and policy processes (Haas, 2002). The challenges brought about by the newness perspective emanated from the expectations that rode on the new institution and the balance between these and the memories of stakeholders who had seen new stakeholders come into

the fray and leave with minimal impact. The promissory and future-oriented properties of NEPAD as an innovation network raised stakeholders' expectations, and a failure to live up to these would leave both the organisation and the target groups disappointed (cf. Borup *et al,* 2006). Equally importantly, this exposed the organisation to the risks of delivery failure, liabilities and loss of reputation within the policy community.

On the whole, NEPAD seemed to have gained capacity to have programmes, especially government-led programmes, emulating its approaches in anticipation of greater recognition of the programmes because of the currency and relevance of NEPAD within the African development terrain. This led to diffusion of practices, and some form of coercion as the organisation had the newness, knowledge and perceived financial resources to be able to serve as a reference point (cf. Busch and Jorgens 2005; Lehtonen, 2006)

5.5.1   NEPAD and AU[60]

The relationship between NEPAD and AU has been described as 'important yet still unclear' (Waal, 2002). As alluded to earlier, the drivers of NEPAD were keen right from the start to keep it disentangled from the cumbersome procedures of the AU decision-making process. NEPAD aims for efficiency, and its emphasis on best practice and peer review means that countries are not on an equal setting within this setting, unlike in the AU, where all member states have an equal voice regardless of their size, economic status or level of democracy. Sources within NEPAD indicated that the organization had managed to make steady progress in the backdrop of 'minimized political baggage', and that some of the tensions which existed when NEPAD was formed may be the reasons behind the current uneasiness between the two

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[60] There is on-going work on integration of NEPAD into the AU structures (this is beyond the scope of this thesis)

bodies[61]. The clash over resources and attention in the policy space were also some of the persistent challenges. The reality was that these interactions between the two organizations were part of the context and how this 'fragmentation at the top' (as referred to by some stakeholders) affected the cross-national convergence agenda was an issue of interest from academic and policy perspectives. How they galvanised or disintegrated the region remained to be seen. Amid all this bickering, the two organizations shared one similarity – that of beginnings that were rapid and marked by over-optimistic assumptions and 'little consultation' (De Waal, 2002). One respondent from a university in Namibia was quick to point out that;

> '...given the success of NEPAD, maybe this is how processes should happen in Africa
> ... rapidly and with decisive seizures of key moments. Biosafety is one area where
> there has just been too much consultation, and as yet, there is nothing much to show
> from all the consultation' [Res3 (R), Oct, 2006]

The point about unending consultations was also echoed by many other respondents, especially scientists and officials from international organizations. Others blamed this on lack of political impetus to take the processes forward. Hence the entry of the three SNOs into the arena was seen as positive for both national and regional processes. One lesson from these exchanges and the overall perception of the policy processes was that stakeholders looked at the processes from short-term rather than a strategic view-point. To most, success in policy processes meant achievement of the set policy objectives rather than the tactical and

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[61] For example, it was noted that in the formation of NEPAD, there were also concerted efforts to avert the Libyan influence which was coming in through efforts to establish a United States of Africa, and this would have had an adverse impact on the relationship between NEPAD and donors such as G8 and OECD (De Waal, 2002).

functional adjustments which the countries and the region had made along the way since the GM challenge surfaced. In his analysis of the Denver Water Politics using the Advocacy Coalition Framework, Ellison (1998) traces these perceptions to the issue framing within the policy arena. For the SADC region this also rang true, and was compounded by the multiplicity of the actors in the fray, resource constraints and the competition for attention that biosafety faces from other issues in the policy arena.

The AU is an umbrella organisation under which the other two should fall, and the AU should thus have influence over these organisations (ECA, 2006). However, with respect to biosafety regulation in the SADC, the other two had more contact with the countries, and had processes which the policy actors in the countries were relatively more familiar with. The AU was bigger, and was said to have bigger 'bureaucratic drag' and was thus generally slower in responding to issues. It was a bigger bureaucracy and its processes were more involving and decisions took longer to be arrived at and to implement. The absence of an AU office closer to the region to handle issues was said to make its reaction to issues slower. SADC and NEPAD both have offices within the SADC region and this was said to impact positively on their visibility.

The AU was seen to be more reactive to issues than the other organisations, and a look at the Biosafety Strategy for Africa developed by the AU in 2006 showed that indeed the AU was trailing behind. Some of the proposed measures, for example;

> *'...encouraging the promotion of biosafety through other existing national and regional initiatives'* ... and that ... *'Much as the RECs are primarily for economic*

*purposes, they **may** still play a role ... to keep biosafety issues on their agendas ....'* (emphasis added).

A SADC official was quick to point out that this was what they had been doing since the early 2000s, and bemoaned what he called a 'new beginnings syndrome' within the AU. There was need for progress in the issue to be reflected, and to serve as a platform for going forward [Res6 (R), Aug 2006].

Meanwhile, all the three organisations were also under different levels of pressure as a result of limited delivery on promises of their programmes. The SADC was said to suffer more from the negative effect of delayed delivery because of close and constant touch with the countries, while the other two were relatively far removed. External pressures also had their influence on the three organisations, and each of them seemed to have set(s) of traditional donors, all coming with different agendas, and therefore having different impacts on the dynamics within the policy arena in the region. Capacities to deal with the different donor pressures also differed, and this was also related to the resource endowments in the different organisations. NEPAD was fairly better resource-endowed than the other two with respect to science and technology agendas, and could in some cases choose to avoid donor dictates, a luxury that the other two did not have. There was thus a clear need for the different endowments and influence levels of the three bodies to be synergised in order to get the best out of the presence of all three organisations within the SADC policy space. Also, looking closely at the three organisations vis-à-vis the convergence agenda, it emerged clearly that they all had different influence levels, and neither of them could claim to have a holistic packaging or total-factor-endowment to deal with the issues (see chapter 6). They all brought

in different perspectives, which one respondent from an environmental agency in one of the smaller countries noted;

"...need to be harmonised before the agenda on the ground can be harmonised. The organisations should not only see themselves as champions (or potential champions) of convergence, but as targets of convergence as well. The convergence should start with them before they take it out to the region and the countries" [Pmk5 (R), Apr, 2007].

However, the feasibility of all this was a daunting order given the perennial fight for resources and the need for each organisation to remain visible and not appear to be fanning other people's agendas. But as Sayer (1992: 18) notes, an acceptance of such realities may help deal with some fallacies. Complete and uncontested convergence may not be feasible given the multiple and fluctuating pressures around the issue, and the existence of contestations among the organisations championing the process themselves.

5.6   Accessing research data in this context

Having presented a characterisation of the organisations and their responses to the challenge, this chapter now proceeds with a closer look at how the context described above facilitated or hindered data collection for an understanding of how the SNOs influenced the convergence processes.

5.6.1 Geographical, economic and institutional context

Accessing and producing comparative regional data from the varied geographic and economic terrain of southern Africa was an acknowledged challenge right from the start. Communication and accessibility capacities differ among the countries, and among the institutions within the countries. This had an effect on the number and type of respondents that could be reached, and hence on the amount and quality of accessible data. The general trend was that it was easier to access a broader base of stakeholders in the smaller countries such as Lesotho and Swaziland, while for the larger countries it was more difficult. The correlation was not only between the size of the country and the reachable stakeholder base, but between the stakeholder base and the size of the biotechnology sector. The smaller economies have, as largely expected, a smaller group of biosafety policy actors and experts, and once reached, they were able to give views and responses representative of the country more easily than their counterparts in the bigger countries in which there was a broader range of biotechnology/biosafety activities and actors. For these smaller countries, it was also much easier to triangulate issues, especially the relatively 'small and obscure' issues (e.g. the impact of staff movements across organisations for employment purposes) because, as it turned out, the likelihood of the stakeholders interviewed speaking to similar issues was higher in the smaller countries than in larger ones (cf. Buchs, 2003). For example, in South Africa, some laboratory scientists, despite being recognised as active players in biosafety discussions and procedure-setting within the country, expressed ignorance on the existence of SADC Guidelines on Biotechnology and Biosafety. Apparently, the regional issues were being handled at higher levels, and the overlaps between these higher levels and other levels such as laboratory-level practices were low. On the other hand, laboratory scientists interviewed in Lesotho, Swaziland, Botswana and Namibia were vividly more aware of not

only the regional issues, but the international issues as well. These differences taken at face value would indicate a difference in opinion among identical stakeholders and across countries, and thus brought comparability challenges in the results. The results analysis thus bore in mind that data available reflected easily accessible parts of the policy communities and that these communities differed from country to country with respect to their level of exposure to the issue, among other differences. The SNOs would thus be expected to face the same challenges in interacting with national policy actors in the convergence agenda.

One problem encountered in the smaller policy communities was that the policy actors were generally not as enthusiastic about the research issue, as those in the bigger economies. According to one senior officer in an environmental agency in one of the smaller countries;

> *''... we talk about these issues to different people almost on a daily basis, and seriously, we are getting tired. Of course, I know you, and we can talk, but you can imagine what my attitude would be if it was just another researcher from somewhere coming here to talk about this issue with which we are really saturated (if I can use those words)''* [Pmk5 (R), Sept. 2006]

On being challenged that this research was not looking at biosafety in the everyday sense, but from the lens of regional cooperation, the respondent was quick to say;

> *''To me, the issues being discussed around biosafety have remained largely the same. We are talking about capacity and preparedness issues. Whether it's from a regional*

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standpoint or any other, the issues are the same, and what needs to be addressed are

the capacity challenges''.

Judging from the consolidated responses on the bigger research questions, these sentiments may well be true, but the point to note here was that this display of fatigue and lack of interest by policy actors in the smaller economies may have had an impact on the opinions given and the quality of data accessed, let alone the impact on moving the policy processes forward. On the other hand, because the policy communities here were small, the researcher was able to triangulate issues more easily, and also to employ the repeat contact strategy to seek clarifications and check data consistency.

The various sizes and locations of policy communities also necessitated use of a heterogeneous array of techniques to reach the stakeholders. In some of the countries, for example, Tanzania and Namibia, most of the key respondents accessed were located in universities, while in the majority of the other countries, they were in government departments, quasi-government bodies or civil society organisations. A marked difference was observed in communication cultures between stakeholders in these different organisational settings. For example, with a few exceptions, it was easier and quicker to get responses from actors located in universities than those located in government departments. As a result of the delays experienced in getting responses from some of the actors, data came in at different times, and this had an effect on the comparability of results because of possible changes in the macro- and micro-circumstances in the intervening period (see also section 4.6.2). In cases where it was possible, follow up was made with the earlier respondents to

assess change of opinion. These time differences in collection of responses were taken into consideration in the results analysis.

Drawing up a sampling frame for the research was also affected to a large extent by the differences in the sizes of biosafety policy communities in the targeted countries, as highlighted in section 4.5. As a result, whether or not to do random or quota sampling of respondents could not be applicable in some countries because of the small numbers of potential respondents. Even in the bigger countries, issues of accessing the chosen respondents, was a major constraint. In the end, non-probability sampling techniques underpinned by convenience and Snowball sampling had to be employed. What emerged was that most of the people who were accessed to participate in the research were by and large the same people who participated in these issues on a continuous basis. They brought with them some 'fatigue and cemented opinions' in some cases, and a feeling that this was another 'of the many studies on biosafety' (e.g. Res4 (R), Sept 2006). However, it was also a fact that these actors had become opinion shapers and leaders on this issue because of their sustained participation, and it was opinions such as theirs which had a huge bearing on the policy processes in the countries and the region (cf. NEPAD and IFPRI, 2004). A researcher within a technology studies organisation in Africa remarked;

> *''We rely a lot on seasoned policymakers because governments and stakeholders know them and trust them. New players are viewed with suspicion, maybe because most of them only enter the fray when a historic event has occurred ... but (of course) we also value the importance of fresh ideas and opinions, so we slowly bring new*

players on board as well. That's how we broaden the policy community'' [Res12 (OR), Oct 2006)

The research and data analysis worked within these practical realities, essentially trying to derive maximum meaning from data and opinions generated from this 'non-perfect world'.

The inability to reach all countries physically for practical reasons meant that *in situ*, in-depth face-to-face discussions were possible only for three countries, Botswana, South Africa and Zimbabwe. Luckily, some respondents from other countries were met and interviewed in regional and international fora, for example at the November 2006 Congress of African Scientists and Policy-Makers (CASP) in Egypt and the NEPAD regional meeting on health innovations held in Uganda, July 2007. In all cases, more emphasis was placed on accessing information about the regional picture as opposed to national perspectives. This was seen as a way of removing the possible bias from having more information on some countries than others. Still, the problem could not be entirely avoided because for come countries, for example DRC, Mauritius and Madagascar, very little information could be accessed.

5.6.2 Timing and culture issues

Another set of critical challenges for this research revolved around timing and culture issues, particularly with regard to the extent to which stakeholders in different countries remembered and attached value to key episodes in the policy processes. This had a bearing on how they interpreted the various questions raised by the research, and the amount of time taken to respond to issues. Regarding timing of the research, there were mixed feelings among the respondents, some holding the opinion that biosafety activities in the region followed an episodic pattern, moving in sync with global and regional developments and challenges.

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While the discussions and activities under the Biosafety Protocol were on-going, and countries were implementing various biosafety activities with assistance from UNEP/GEF for example, the real impact, as one official in the SADC observed, was from the major events that jolted the governments into wanting to invest in policy development.

"Our governments work best under pressure, and there are many reasons for this. In this case, the best time to assess the seriousness and commitment of the governments to the regional agenda would have been around the time of the 2002/2003 food aid crisis. The issue of biosafety caught the attention of leaders then, and this in many ways gives a measure of what is achievable and what is not. Organisations generally align their capacities and machinery with the prevailing leadership opinions, and for all it is worth, the desired convergence probably came and served its purpose, and beyond that, countries have since moved on separately" [Res6 (S), Aug 2006]

This was quite a thought-provoking opinion, and it reinforced the researcher's decision to use the 2002/03 food aid debacle as a departure point. While the point about how long the anticipated convergence could hold was taken, why the research was felt relevant still, a point which was discussed with the above respondent, was that convergence/harmonisation was being talked about and championed post-2002/03. This showed that there was a cause and underlying need for the convergence. In addition, measuring or assessing the convergence beyond the excitement of the political rhetoric was important in revealing to what extent the agenda had been institutionalised and how prepared countries were to deal with a repeat of such challenges in future. One key theoretical and policy issue that emerged clearly from the discussion with this official, and from discussions with others, was that in

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some of the countries and organisations, responses are guided by a 'surviving-for-the-moment' mentality. Beyond current survival, things were expected to fall into place 'somehow'.

Different institutional and social cultures across the countries also brought some issues to the fore. For example, respondents from some countries such as Botswana had a fairly 'laid-back' approach to issues, and some respondents attributed this to the per-capita economic self-sufficiency of the country in comparison with the other countries in the region. A typical 'no-hurry' attitude was apparent among the respondents from this country, not only with respect to rate of responding to research queries, but even to when and how the convergence should be achieved. A senior regulator and active representative of the country in regional and international biosafety fora had this to say on the sidelines of an international meeting;

> *'' ... why should there be a hurry to achieve convergence when individual countries are still developing their own systems? We all need to go through the same learning curve, without hurrying and worrying about who is at what stage. We can share and exchange experiences with other countries, no problem, but each country needs to go back and work according to its own capacity and requirements'' [Mtg3, Nov 2006].*

These sentiments underscored the challenges emanating from the different economic status of the countries, and the accompanying institutional and social cultures. Some countries and institutions could afford not to hurry, while for others, the biosafety challenges could only be surmounted from a collective action perspective. Still even for the resource-endowed countries and institutions, the benefits of collective action were indicated to outweigh the

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advantages brought about by having resources because, as one respondent from a regional biotechnology and biosafety advisory committee aptly put it;

"The challenges from this technology are too numerous, and I do not see any single country being able to deal with all of them on its own. If European countries, with all their resource endowments and technological advancements saw it worthwhile to combine forces with their neighbours, what can be expected of our own poor and technologically vulnerable countries?" [Pmk9 (R), March 2007].

The issue of countries seeing themselves as capable of 'going it alone' also manifested itself in the emphasis on strengths and national achievements observed when countries took part in experience-sharing fora. There appeared to be some competition among the countries, and a desire to show that 'within our borders, we are making progress', and there were specific groups of countries that were known to exhibit this competitive rivalry between each other[62]. This scenario not only brought a challenge to the quality and authenticity of data supplied by respondents, but also 'threw spanners' in the convergence works, especially with respect to how the convergence could take place. One way of trying to deal with this challenge was through looking beyond the formal space, and this was vindicated by the remarks from one EU-based respondent who has interacted extensively with science and technology policy (including biosafety) experts in the SADC region;

"The true picture of what is feasible and how it can be done cannot emerge entirely from the formal meetings and fora where government departments and other agents

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[62] SA and Botswana are known for exhibiting this stance against each other; Lesotho and Swaziland also bemoaned what they termed a 'big-brother attitude' from SA

of research institutions are engaging in discussions. There are tendencies to want to outdo each other in these fora, and sometimes the reality on the ground is compromised. Venture into the informal space, or catch these same practitioners after their formal meetings and hear if they consistently 'sing the same song'' [Res15 (OR), Mar, 2007).

Different cultures in countries and institutions and these competition dimensions also resulted in some issues being 'black boxed' by some respondents. For example, in some countries respondents were able to openly name individuals or institutions whom they thought were negative forces in the biosafety arena and the convergence agenda specifically, while in other countries this openness was not possible. This 'black boxing' and issue-avoidance or skirting varied among countries, institutions and respondents, and had an effect on the data that was accessed, and subsequently the comparison of this data. Risk perception also differed among countries (cf. Hofstede's model on dimensions of national culture)[63], while the rating of issues on different scales provided in the questionnaire-mediated part of the research also showed that respondents had different opinions on what is 'low, moderate or high' for example[64]. There was a general trend showing countries with less experience with the technology being more preoccupied with putting in place measures to predict and manage the uncertainty from the technology than countries with a longer association with the technology who focused more on reaping benefits from it. These differences in uncertainty avoidance have a strong bearing on the feasibility of cross-national convergence of systems, further supporting the path and legacy-dependency nature of policy processes (Considine, 2005:

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[63] Hofstede, Geert (1991) *Cultures and Organizations: Software of the Mind*. New York, NY, McGraw-Hill
[64] Particularly on responses relating to feasibility of convergence; whether or not convergence should happen voluntarily or through imposition of models by policy-donors; and to what extent each of the three SNOs had contributed to increase in similarity of systems across countries.

127). Respondents from some countries, for example Zambia, Mozambique and Malawi seemed to be consistently moderate in their ratings, while those from others, notably Botswana, South Africa and Zimbabwe tended to rate on the high side. This was the case for both national and regional level issues. These responses were postulated to reflect either confidence in the national systems or some desire to achieve more. On the other hand it also reflected the existence of national and institutional factors that shape regulatory officials' perceptions of risk, and the process to regulate the risk (Rothstein, 2002).

5.6.3   Issue framing and terminology

As mentioned in section 4.5, the attempt to design a questionnaire that would adequately capture the views of the highly heterogeneous mix of different stakeholders targeted by the research was a major challenge. The multi-level and multi-actor nature of biosafety was the source of this challenge. The way regulators and policy makers understand biosafety was not the same as that for workers in NGOs, for example, or scientists practising the science in the laboratories. Among policy makers and regulators, biosafety was about policies and regulatory measures, and this was what came to their minds when the issue was raised. Respondents from NGOs and lobby groups said to them biosafety immediately raised issues around food and environmental safety. On the other hand, scientists in the laboratories were not only worried about the safety of the products of their research, but their 'human safety' while they carried out their research procedures. Biosafety thus elicited different interpretations, and the research was conceived and it proceeded with these variations in mind. Indeed, the aim of the research was to capture these different views and perspectives, using as uniform an approach and research instrument as possible in order to ensure

comparability of results. The research thus had to achieve a fine balance between following research traditions and being innovative.

Apart from the challenge of same words or terms eliciting different meanings, the research also faced the challenge of different words which policy actors used in their daily discourses to mean one and the same thing. For example, there were many terms used to denote or imply the desire by countries to work collectively in dealing with the challenges posed by biotechnology. Terms such as collaboration, cooperation, integration, rationalisation, coordination, levelling-the-field and harmonisation, among many others, were used frequently and often interchangeably (Chapter 7 takes a closer look at these issues). The challenge for this research was to try and capture these terms in the questionnaire and in the discussions, and at the same time appreciate and understand the practical meanings and implications of each of these terminologies. It was also quite sobering to realise that some of the terms were used by stakeholders to maintain currency with prevailing 'buzzwords' especially among the donor communities. One respondent from a regional biodiversity programme cautioned;

> *''You have to be very careful and to be sure that people mean and do what they say. You can be sent on a wild goose chase! There are people and organisations who use certain terms just to please donors while on the ground they have a different work ethic altogether. How many organisations have you heard claiming to be stakeholder-driven, bottom-up and so forth? Even these desires about harmonisation or*

convergence ... one needs to see how they are reflected in national documents in order to judge the commitment of countries to the ideal[65] *[Ngo1 (R), July, 2007].*

An analysis of major national and regional documents on biosafety revealed that indeed the desire for cooperation or collaboration was expressed[66]. However, different terminology was used to refer to the same aspirations, and whether or not this was again the result of an influence from the 'donor' community, was unclear in many cases. The researcher took the presence of these terms to mean that countries and the region were indeed pursuing the convergence agenda (or however this desire may be denoted!), and the challenge still remained how this was being facilitated by the three supranational organisations. Convergence on terminology was probably one of the many pieces that needed to come together in the quest for convergence in regulatory practices. A leading figure in one of the supranational organisations even suggested a study to trace the evolution of some of the current terminology, and how they had impacted on delivery of processes on the ground. The term 'biosafety' itself was suggested as one whose development needed to be unbundled. What was clear from these encounters and descriptions was that issue framing had an impact on the delivery of programmes on the ground, with some framings serving as more effective rallying points than others. The research and the results analysis took cognisance of these realities, and also the variations of these realities across countries and organisations.

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[65] The challenge of some approaches being reduced to mere rhetoric, and in some cases being even used for manipulative purposes has been written about by many authors. For example Samuel Hickey and Giles Mohan in their book '*Participation: From Tyranny to Transformation? - Exploring New Approaches to Participation in Development*' analyse these issues, and also propose how participation can be used to result in genuinely transformative processes and outcomes.
[66] For example in missions and mandates for AU, SADC, NEPAD and other regional bodies

5.7 Concluding remarks

This chapter started the process of unveiling empirical data on the multiple contexts of the regional setting in which the results presented in the ensuing sections were generated. Some of the key issues presented in the earlier chapters and confirmed in this chapter are the presence of relentless micro- and macro-contexts which have both direct and indirect bearing on policy making broadly, and policy convergence specifically; contexts made up of individual, organisational and national actors all with different interests, knowledge, power and values among other dimensions. The importance of recognising and understanding these multiple contextual realities is that it brings a closer understanding of the bounded rationality surrounding the policy choices made by individuals, organisations and countries in the region, and the uneven terrain in which the SNOs are trying to encourage similar cross-national policy responses. In other words, the context determines both feasibility and extent of accomplishment of what is feasible, through dictating resources needed, among other dimensions. With respect to the conceptual framework for this study, the context determines the feasibility and extent to which the SNOs can deploy various mechanisms for moving policy innovations across different boundaries. The thesis proceeds now with a data-driven presentation and analysis of stakeholders' narrations on the roles of the SNOs and the extent to which convergence has happened. This presentation is very much rooted in the stakeholder accounts as the researcher avoided 'globalising the regional story too much', as cautioned by the respondents. Further elucidation of the narrations and interpretation from established theoretical perspectives will be accomplished in the last three chapters.

CHAPTER 6: STAKEHOLDER VOICES ON THE EMERGING CONVERGENCE AND MECHANISMS

'For every member of a given political community, that is, in any collective where people participate in decisions, some kind of story is told about the role of actors and of collective action in shaping how important things get done' (Considine, 2005: 10).

6.0   Introduction

The previous chapter presented the context in which the efforts towards convergence were studied, discussing and emphasising that this context determines the ways in which the SNOs impact on the spread of policy innovations within the region. Proceeding from there, the focus of this current chapter is to present stakeholder narrations on various aspects of convergence. Availing empirical evidence has been admitted by various authors as highlighted in previous chapters to be not easy, particularly because convergence is vexed and muddled with various normative connotations. The limited attempts to operationalise this concept in the mainstream literature make the concept more complicated, making the availing of evidence of convergence a difficult process. This chapter will look at the emerging processes towards convergence of biosafety systems in the region and the convergence realised, mainly based on the accounts of the various policy actors interacted with during the course of the research and observation of the policy processes in the region[67]. The components that will be looked at in establishing the status of policy convergence include policy scope, policy objectives and institutional arrangements, and a number of other aspects that emerged from the research. The relationship between the emerging convergence and the national systems and regional goals will also be investigated and discussed. Most importantly, and in line with the desire to avoid a 'disappearance of the circumstances [of the

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[67] Chapter 7, focuses on the motivations behind these stakeholder narrations

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region] within the preferred global context' as bemoaned by stakeholders, this chapter adopts a narrative approach built upon responses to questions and themes developed throughout the study. The empirical evidence presented in this chapter will be analysed in subsequent chapters with guidance from the Busch and Jorgens typology, bringing out how the three supranational organisations have influenced the policy processes.

6.1   The Stakeholders

The majority of respondents to both the semi-structured and the questionnaire-led interviews were scientists from within the region, followed by staff from the three SNOs, and other regional organisations. The other respondents were as presented earlier, and as detailed in Appendix 3. Figure 3 below shows the distribution of respondents who responded to the second questionnaire (Appendix 2).
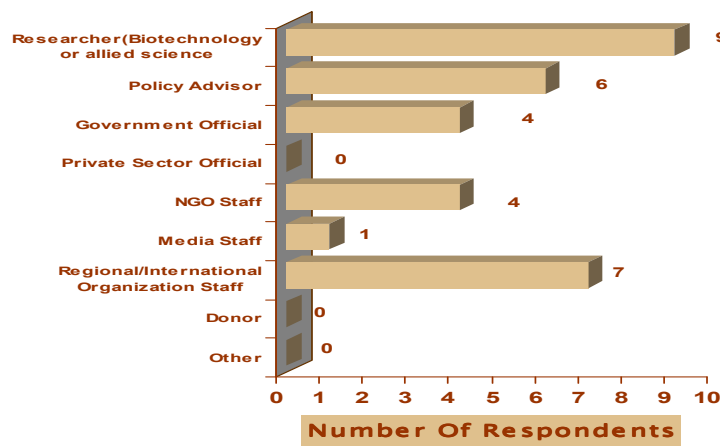
Fig. 3: Distribution of questionnaire respondents to questionnaire #2

In addition, there was a more or less equal distribution with respect to which of the three SNOs they worked most closely with, as shown in fig 4 below:
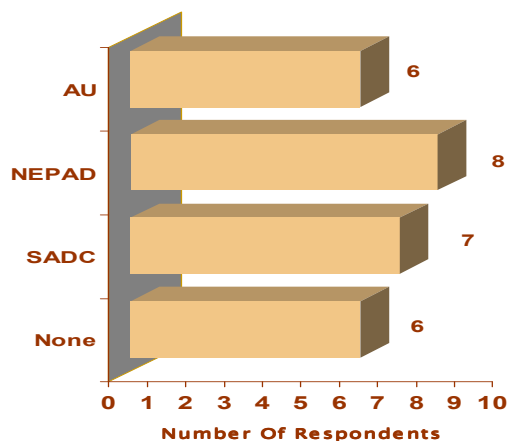
Fig 4: Organizations that respondents work closely with

Further, and as shown above, a roughly equal proportion of respondents did not have close working links with any of the three organisations, and this was envisaged to give a fairly representative sample of views around the collective situation facing the countries and the perspective on the organisations under focus.

6.2   Feasibility of convergence

The investigation into the feasibility of convergence looked at different levels of institutional arrangements, policy and other dimensions, and observed as well as sought stakeholder input on their assessment of the cross-national convergence agenda. The look at different levels of institutional and policy dimensions was motivated by the definition of convergence as agreed on by many scholars, which looks at convergence as 'increasing similarity in structures,

processes and performances' (e.g. Bennett, 1991). While this study was interested in increased similarity of policies and regulatory systems at cross-national level, the sub-national levels were seen, and confirmed by respondents to be crucial if convergence was to happen at the cross-national level. The level of convergence or coherence (or their direction towards such) within the sub-national policy and regulatory structures was argued to have a huge bearing on the feasibility of convergence at the higher level. One respondent from a regional technology and policy studies institute in East Africa underscored this need for convergence at the sub-national level, especially looking at different government sectors that have a stake in the technology and its regulation, and had suggestions on how this could be done:

'It is important for regulatory agencies or sector ministries to work towards convergence of biotechnology/ biosafety policies at the national level. Convergence or harmonization at the national level would enhance opportunities for cooperation and convergence on matters of biosafety at the sub-regional level. Countries should establish inter-ministerial (Agriculture, Science and Technology, Environment, Trade etc) task forces to coordinate and ensure coherence in biotechnology/biosafety policies' [Res12 (OR), Mar 2007).

This 'charity begins at home' thrust [quoting Res21 (S)] was supported by many other respondents, with staff in the supranational organizations and other regional bodies pointing out how difficult it was to work with countries that were having coordination problems in their own national systems. This was said to result in a magnification of the coordination costs at regional level (cf. Jordan and Halpin, 2006), since the problems within the national

systems 'would not suddenly disappear when the discussion is elevated to regional level' [quoting Res21 (S)].

Some respondents even chose to look beyond the sub-national coherence/convergence. While admitting that this was a threat to the desired cross-national convergence, an even bigger threat was highlighted to be the different levels of development and implementation at which the national systems were. These national systems were the direct inputs for the regional process, and while they may be underpinned by fragmented national systems, it was better to have them in all countries, than not to have them at all in some countries, yet still expecting a regional regulation platform to emerge. As one consultant with a regional biosafety programme observed:

"At cross-national level, attaining convergence will be more difficult as countries are at different levels of development and reform of their national systems. For example, while SADC guidelines exist and were developed through a collective multi-country effort, there is still a lot of individualism ... meaning, countries still focus on their national weaknesses ... and this has a direct effect on convergence in the truest sense" [Res8 (R), Jul 2006].

Still others were of the opinion that through epistemic influence, convergence at the sub-national level could follow convergence at the higher level. This assumption of rational action is however disputed by some stakeholders who feel that 'nothing can be taken for granted or expected to just follow' [e.g. Res12 (OR), Mar 2007]... and they attribute this to

the complexity of the policy arena. Yet others underscored the importance of convergence at all levels, since, as a system 'the structures put in place in the vertical continuum from individuals and organisations all the way to the regional level would only be as strong as the weakest link' [Res2 (S), Oct 2006] in line with general systems theory. However, the unavailability of adequate human and final resources to deal with all levels adequately and effectively remained a hindrance to the holistic approach, which would be ideal, all things being equal. Figure 5 is a graphical representation of the stakeholder opinions on the feasibility of convergence at the different levels.
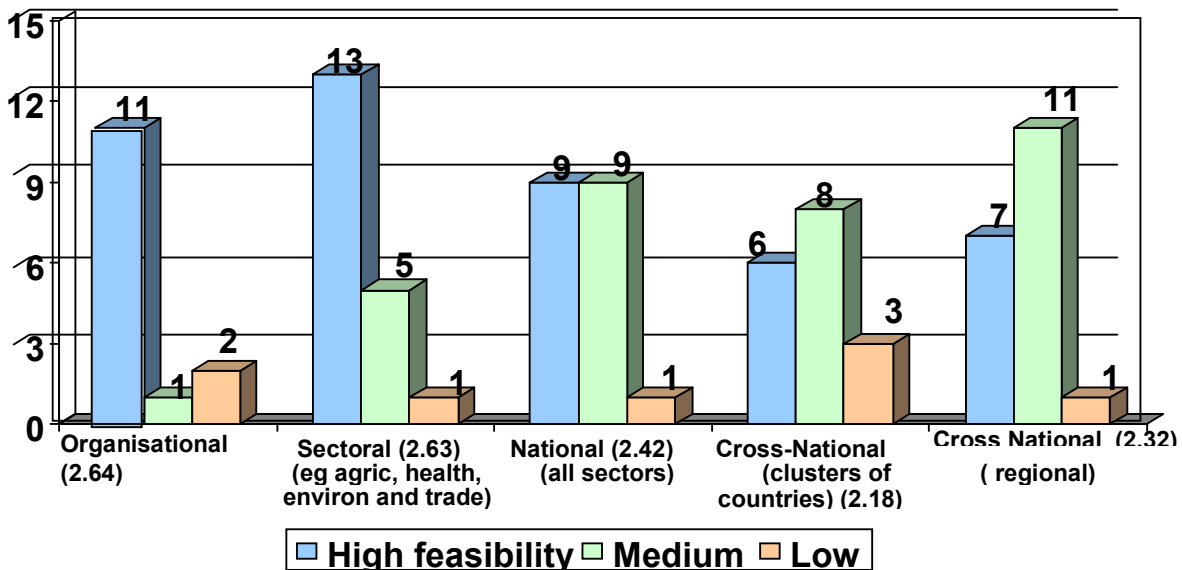
Figure 5: Stakeholder opinions on feasibility of convergence at different levels

Taking together the opinions indicating *high and medium feasibility* (although these results were not subjected to statistical analyses to measure the significance of the differences) the weighted responses (in brackets) show that each level was considered important as a convergence target. This underscored the links between these different levels, especially the feedback loops that exist, which might reinforce or threaten the stability of the other levels.

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According to one international consultant [Res24 (OR)] who has worked extensively on biosafety issues in Africa tackling policy issues at these different levels concurrently was feasible provided *'the right approach is employed'* . He proposed one of the right approaches to be *'ensuring an even spread of resources and stakeholders in the policy arena, so that there is no concentration of all efforts at some preferred policy targets'*, notably the target on different sectors within government departments. He further suggested that this could be one role that the SNOs could take up in the region.

6.3   How should convergence take place?

Another cluster of questions solicited stakeholder views on how convergence should happen or had taken place within the burgeoning regional context. Based on prior literature search and results of the pilot study, a number of convergence mechanisms were given to the respondents as options, while they also had the leeway to give different responses from the options given.

By far the greatest number of respondents indicated that convergence should take place *voluntarily.* Countries should be free to adopt policy models or other practices according to how they saw these fitting into their own systems. It was underscored that *sovereignty* was a key consideration among countries, and having the choice to decide on the suitable policy innovations would also ensure that the emerging systems were owned by the stakeholders, and therefore more likely to be sustainable. A respondent from a regional technology and policy studies organisation had this to say on this issue:

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''For political reasons and concerns to do with national sovereignty, convergence should be based on voluntary adoption of models. Issues to do with biosafety are complex and sensitive. While countries can agree on common guidelines or procedures for a region or a sub-region, the ultimate decision to enforce the same rests with national governments on a case-by-case basis. Some countries may decide to adopt and enforce minimum agreed guidelines for convergence while others may decide to exceed what has been agreed upon. For instance, the biosafety guidelines and regulations of Tanzania on LMOs for food, feed or processing exceed the minimum standards stipulated by the Cartagena Protocol on Biosafety'' [Res12 (OR), Mar 2007].

This leeway to exceed or operate at set minimum standards would certainly present a challenge to the convergence agenda, according to those who preferred *imposition of models* [e.g. Res5 (R), Apr 2007] further arguing this would circumvent the task of balancing between ensuring national choice and sovereignty, and the attainment of the desired regional goals. They also further argued that countries had different learning capabilities, and what they would learn and adopt from the available options would inevitably be different especially if there was no guidance (cf. Stone, 2000). Still some respondents argued that the similarity in systems that had been realised so far had been a result of voluntary adoption of different models among the different countries, and that, given the largely uniform policy challenges that the countries faced, there was a high chance that the countries even on a voluntary basis would adopt good and effective models uniformly [Pmk5 (R), Sep 2006]. This was in line with the conventional convergence thesis which states that through a process of increased growth among the lagging countries, and the converse for leading countries,

problem pressures will result in similarity (Tinbergen, 1961). Thus, instead of pointing out voluntary learning as the reason behind persistent policy differences, some pro-voluntary convergence policy makers mentioned imposition of models would still not work as long there were no suitable policy models to impose.

Fig 6 below summarises the stakeholder responses on how convergence should take place.
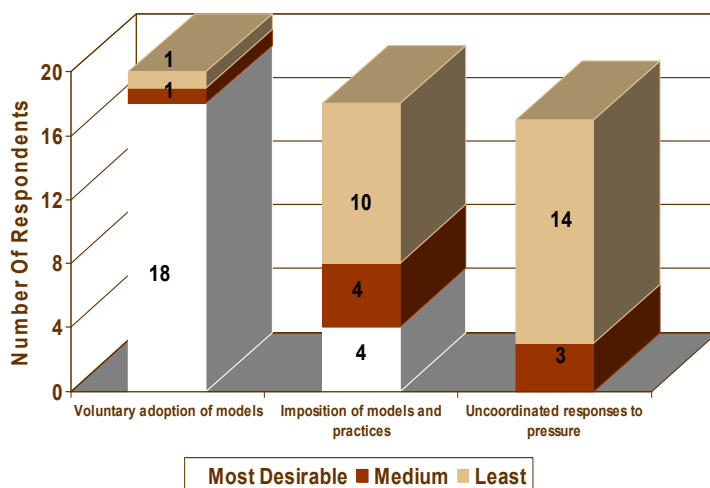
Fig 6: Stakeholders' opinions on how convergence should happen

Clearly, voluntary adoption of models was the preferred approach, and there was virtually no one in favour of uncoordinated responses to the policy pressure. The different learning capacities at national and sub-national levels were again cited as a major hindrance to the effectiveness of such an approach. This challenged the assumption of rational-learning which seemed to dominate most of the thinking behind feasibility of cross-national regulatory systems, where policy actors were assumed to search for lessons as widely as possible, and to make the best decisions out of the lessons (cf. Meseguer, 2005). Models would be needed, and the adoption mechanism being the critical issue. It was also interesting to observe that

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while generally there was no marked variation based on respondents' professions or organisational affiliation with respect to the preferred mechanism, one scientist had a different opinion, emphatically pointing out that:

''Convergence of biosafety/biotechnology policies can only happen through imposition of models by those who have resources. It is almost impossible for leaders of two sovereign countries to bring about cross-national convergence when they are left to choose what they want, because they will each revert to their original positions. And, looking at it from another angle, this voluntary learning has been happening all these years, and nothing tangible has been achieved. So, why not change approaches, especially for this technology where the polarisation may mean that learning points continue to differ'' [Res5 (R), Apr 2007].

The need for new approaches was echoed by many respondents throughout the study, particularly scientists who felt policy makers were using the same old approaches when rationality called for new approaches given the dynamism of the technology and the various levels where it had an impact. The researcher noted that policy actors might also have reached saturation levels in their learning especially given that in most of the countries, there were only a handful of the policy actors working on these issues, in addition to the many other issues that they also had to deal with on a continuous basis (cf. Court and Maxwell, 2005; on bridging research and policy). One lesson from these responses, and an issue that was reiterated by many respondents, was the importance of getting the process right, i.e. owned and/or supported by the affected policy constituencies, if convergence was to be achieved.

6.4 From process to output

The inquiry on the preferred convergence mechanisms addressed above was investigating how the convergence had been or would be achieved, and it was closely linked to another cluster of questions which was investigating the preferred end product of these processes. Three options were provided, i.e., whether the resultant converged position/systems should be *voluntary standards, legally-binding standards*, or *a mixture of the two*. Surprisingly, while with regard to the process there was a preference for voluntary adoption, the majority of the respondents preferred legally-binding standards at the end of the processes. A lot of questions arise with respect to how this then would become feasible given the importance of choice as underscored in the responses to preferred mechanisms. The main arguments were, however, that when countries had attained the similar systems through the voluntary route, they fully owned the results of the process and were committed to the implementation. Making the results legally-binding would help in making countries stick to their commitments, and in safeguarding the regional agenda from the expected fluctuations at national level.

However, there were proponents too for voluntary standards, and for a mixture of the two, and these both sought to accommodate the choice and sovereignty that countries were entitled to. Those in favour of voluntary standards also pointed out the absence of regulatory authority within the three SNOs, and how this had to be taken into consideration in developing the systems. Derek Beach (2005: 17) refers to this lack of regulatory authority as 'providing informal leadership or informal entrepreneurship' in his argument that EU institutions matter in the European integration process. The leadership provided by the institutions helped parties collectively deal with impediments to achieving common gains,

and the same sentiments were shared in this study by those who saw space for voluntary standard-setting championed by the SNOs. In addition, they further argued that once countries had voluntarily become part of the converged systems, there was no need to then compel them to adhere to the results of the process. The following responses capture the divided argumentations on the three positions:

For **voluntary standards** (from a researcher in a regional technology and policy studies centre)

> *"It is unlikely that legally binding standards would permit convergence. Anything to do with harmonizing laws has to go through the legislative arm (parliament) of national governments. The process of enacting new laws or revising existing ones can be slow or rigid in most cases. In this regard, agreeing on legally binding standards among countries in the SADC region would be elusive and challenging" [Res12 (OR), Oct 2006].*

For **legally-binding standards** (an environmental lawyer with a regional coalition of environmentalists)

> *"Legally-binding standards on biosafety and biotech create legitimacy and predictability rather than loose policy documents that only reflect statements of interest. This means creating a legal framework that establishes institutional arrangements, legal remedies or creates legal duties and obligations at both national and regional levels" [Ngo8 (OR), Jul 2007].*

For a **mixture of the two** (international consultant on biosafety based in the EU)

> *"A combination of the two would probably work best. Experience in biosafety and other sectors in the EU (e.g. regional seed or pesticide policies) tells us that standards will need legal enforcement, in addition to relying on the goodwill of the countries" [Res24 (OR), Jul 2007].*

These different opinions only served to highlight the various levels of tension around this issue, and how crucial flexibility would be in the processes towards attaining convergence, and in the implementation of the emerging systems. A continuous review of the systems would also be necessary to ensure that the systems remained relevant (cf. Young, 2005). Meanwhile, Chapter 7 will trace some of the understandings on these processes and outputs, making reflections on their likely impact on mechanisms towards convergence.

6.5 Who is best placed to steer the convergence process?

Stakeholders' opinions were also sought regarding who was bringing what to the convergence agenda, and in the final analysis seeking an indication of who was best placed to champion the convergence process. Options of different actors were given based on the stakeholders identified in the policy arena and the various roles they were playing. The importance of embedding the policy processes within the countries of the region was underscored, bringing out again the importance of having countries owning the process and the products from the process. The majority of the respondents indicated that government departments in the various countries should play a leading role within their countries, and in taking the issues to the regional agenda table. This would give the processes the much needed

political and legal backing which would take the processes forward. It was underscored that the collective dilemma facing the countries needed the political backing of the national governments for a feasible solution to be found. Therefore, while scientific institutions, NGOs and other knowledge bodies were needed, the legitimacy that government institutions brought was seen as paramount, confirming what Court and Maxwell (2005) found in their analysis of the gap between policy and research in developing countries, where a weakness in one of the components affected the entire process. On the other hand, the bureaucratic processes of government departments were bemoaned, and the need for a holistic approach was underscored. The fact also that most of the cross-national learning and experience-sharing had been spearheaded by these same government departments with little results was seen as an indication that new approaches were needed [Res5 (R) April 2007]. Also, in terms of capacity, government departments were invariably weak, and their perennial tensions with other players were also seen not to be helping the situation (cf. Court and Maxwell, 2005). How best to move this agenda forward seemed therefore to be another of those many different levels where a negotiated approach needed to be arrived at, and reviewed continuously to keep all interests amply covered. Maxwell Taylor (2005) talks about 'the need to balance persistence and opportunism, sticking to an issue long enough to make a difference … and being prepared to present the issue in new ways'. Two researchers from regional NGOs had the following to say:

One …

> *"The national governmental institutions, including biotechnology and science research centres should be at the forefront in steering the linkages. This is because they will be expected to implement the legal and policy provisions once they are in place. Civil society and the other partners should only play a supportive role in*

achieving the convergence of these policies. The private sector is part of the equation,

but in most cases, it brings a negative value"[68] [Ngo8 (OR), Jul 2007].

The other …

"The reason why national governmental institutions are best placed is because of the

adoption and implementation. If the convergence is brought about by donors or civil

society organisations, it will be an uphill task to get it adopted and implemented into

anything legally binding" [Ngo2 (OR), Oct 2006].

The supranational bodies were also said to have a special role right from the start because of

the political clout that they wielded which should help in bringing the different stakeholder

interests together, as one scientist at a university indicated.

"Sub-regional organizations such as SADC are well placed to steer convergence

because of political clout and the confidence that member states have in them. The

potential for such organizations to mobilize both financial and technical resources is

also relatively high" [Res14 (R), Oct 2006].

On this question, it was interesting to observe the near-consensus with regard to who was

preferred for steering the process. There was very little of the *pulling-towards-my-*

institution[69] mentality. Most stakeholders emphasised the important role played by politics in

getting the policy processes to move, and for their outputs to be effective. The politics, it was

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[68] Referring to the negatively-viewed profit motive of companies, especially multinational companies
[69] My own emphasis

underscored, needed to be informed by the various constituencies around the issue, so that an informed and trusted leadership emerged to spearhead the process.

6.6 What has converged so far?

The study further sought stakeholders' opinions on the level and type of convergence that had been attained to date within the given context and realities. As with the other clusters of questions, a number of options were presented to the respondents, based on the composition of a biosafety system, and an analysis of stakeholder responses in the pilot studies and the on-going study. The extent of convergence within the following structures was investigated; entire systems, entire policies, regulations only, policy scope and objectives only or institutional arrangements only. Respondents also had the option to indicate if none of these had converged, and to indicate alternative levels where they felt convergence had occurred.

The respondents were almost in complete agreement that there had not been any convergence in the entire systems, or in entire policies. Policy scopes and objectives and institutional arrangements, and to some extent regulations were said to have converged. The trend seemed to reflect increasing complexity of the structures, and the level of use within the countries. Most countries were preoccupied with putting in place regulations and institutional arrangements in which these would operate, and then policies and entire systems later. This paid credence to the observation by some respondents that the practice had to be in place to influence what was achievable in the convergence dimension [Res8 (R) Jul, 2006; Pmk7 (R), Jul 2006 and Mtg2, Oct 2006]. The active engagement by most countries in setting up institutional arrangements and developing regulations was thus seen as one reason why there

had been some appreciable level of similarity in the emerging structures. Figure 7 below is a pictorial summation of the stakeholder responses on what had converged so far:
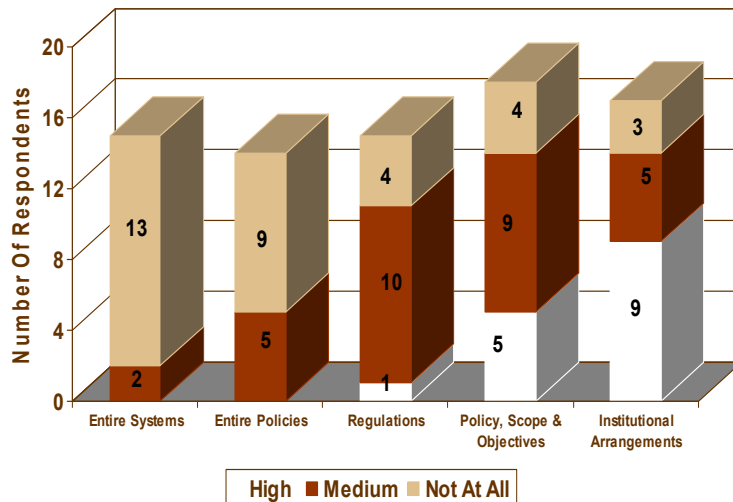
Fig 7: Responses on where convergence has happened

As shown above, there were no positive opinions on entire systems having converged, and this also correlated with the envisaged feasibility of attaining this as discussed earlier. The amount of resources needed to attain this, vis-à-vis the sovereignty and choice dimensions from countries made this level difficult to attain and sustain. The development trajectory followed by most of the countries seemed to put having entire systems at the end of the continuum, and convergence of the same would thus only start getting visible when activity intensified at that level. The fragmented approach by the different bodies trying to help countries develop their systems was also blamed for the limited holistic approach and impact. A respondent from a regional NGO had the following to say on this scenario, emphasising the importance of the bigger socio-economic context in each jurisdiction;

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"Arguments have been presented on the complexity of converging entire policies. Whilst convergence of regulations and some methodological processes is possible at different levels, converging policies across sectors and across countries is complicated mainly by the fact that policies are set to address the socio-economic agendas/needs of the specific entity" [Ngo4 (R), Mar 2007].

Even the guidelines on transboundary movement of GMOs developed by the SADC after the 2002/03 food aid crisis in the region also addressed only specific components of the system (how to handle GM-food imports), and this reflected a realisation of the complexities of dictating policies from a regional position; as one researcher with a regional policy studies institute in East Africa pointed out:

"In 2002, the SADC Council of Ministers of Agriculture directed the SADC Secretariat to establish a SADC Advisory Committee on Biotechnology and Biosafety (SACBB). The Committee produced "SADC Guidelines on GMOs, Biotechnology and Biosafety", covering specific areas of convergence for handling of food aid, including regulations, capacity building and public awareness & participation" [Res12 (OR), Mar 2007].

This realistic approach was said to be crucial if attainment of convergence was to be feasible.

6.7 How has the convergence happened?

The next set of questions investigated how the convergence described above had happened, looking specifically at the mechanisms that were operational and the facilitating factors. As with the other questions, a number of options were given to the respondents, based on earlier

analysis of the forces and mechanisms at play in the context. Respondents' views were sought on the operation of the following mechanisms; imposition of practices by organisations, experience-sharing and linkages among countries, training and workshopping, resource-provision by donors & development partners, provision of models, leadership and influence by leading countries, uncoordinated learning; and any other mechanisms. The following graph captures the stakeholder responses on this issue:
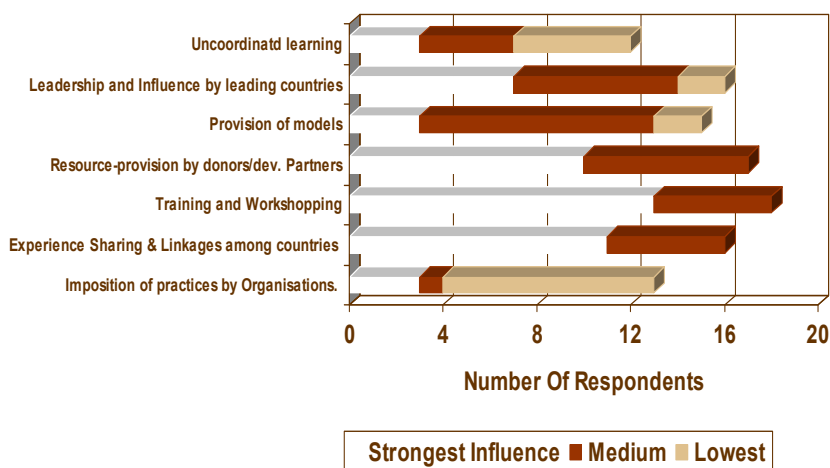
Fig 8: Respondent's views on how convergence has occurred

Training and workshopping, experience-sharing and linkages among countries and resource provision by donors and development partners were the three mechanisms that were rated highly with respect to their influence on the convergence agenda. What these three factors have in common is that they were availing resources for policy processes to take place, leading to an alleviation of one of the biggest challenges facing the region; i.e. lack of financial and technical capacity to deal with the issues. Leadership and influence by leading countries was also said to have played a significant role, and this reflected the trust that countries and organisations had in players from the region, as opposed to leadership and

influence from outside the region. There were, however, some fluctuations in this trust, and some respondents (mainly those from government departments) attributed this to what they termed 'pursuit of borrowed agendas' [Pmk4 (R), Oct 2006] by some of the leading countries and organisations. South Africa was specifically mentioned for having a 'commercial thrust' [Res8 (R), Jul 2006], which was not at the same pace with that of other countries in the region. In particular, the active involvement of the private sector in the development of the SA regulatory system was mentioned, with one respondent from a regional coalition of environmental advocates alluding to this in his wide-ranging response:

"Many workshops and experience-sharing forums have taken place since the biotech debate started and this has resulted in exchange of experiences towards adopting common strategies, practices and regulatory frameworks in the SADC and AU. These processes have also been driven by resources from donors. The private sector, especially some companies in South Africa have also played a significant role in that country, though civil society viewed this from a negative perspective" [Ngo8 (OR), Jul 2007].

Meanwhile, the different learning capabilities of the countries in the face of the different knowledge sources on the issue were reflected by the low points scored by factors such as uncoordinated learning and provision of models. Imposition of practices by powerful organisations was also rated lowly, but in the final analysis, it was clear that every factor/mechanism had made or had potential to make a contribution towards the attaining convergence. While countries preferred voluntarism, there was room for operation of all the other mechanisms and factors, pointing to the complexity of the context and the challenge of

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attaining the desired convergence. Further reference to the motivations behind this and more is given in Chapter 8. Meanwhile, it was reiterated by one policy analyst based at a UK university that overlaps and blurring of boundaries between activities of different organisations also needed to be taken into account in trying to parcel out the contribution of the different mechanisms and factors [Res20 (OR), Apr 2007]. It was also true that a single organisation or policy player could be associated with different mechanisms in space and time, with some fluctuations happening as a result of efforts by these organisations to position themselves strategically to make the best contribution to the processes.

6.8   Assessing the organisations

With the emerging convergence having been assessed, the next level was to try and pick out the contribution of the three supranational organisations in bringing about the convergence. Respondents were asked to assess which of the three organisations was best-placed to steer the countries of SADC towards convergence, based on criteria encompassing factors such as relevance of mandate, resource endowment, technical and human capacity to deliver and clarity of procedures. From these assessments, respondents were then asked to give an overall picture of who had contributed the most, while the researcher also used results of the ratings on the different issues to develop a clearer picture of the contribution of the different organisations in the issue. The following three graphs depict how the three bodies were rated on the issues indicated:
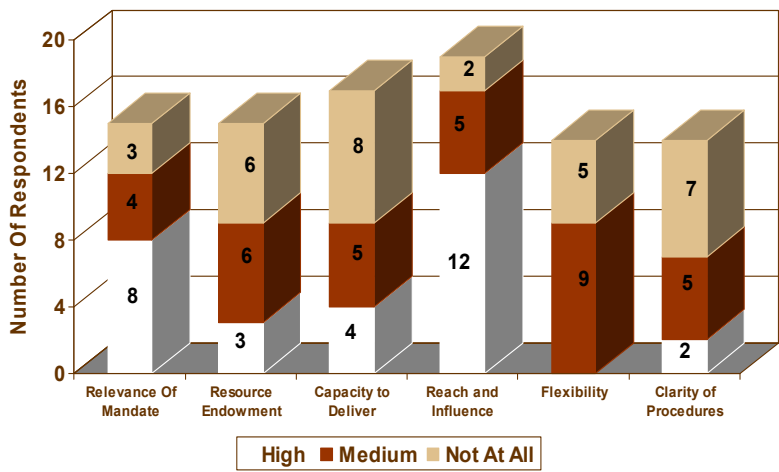
Fig 9: How the African Union was rated on various aspects

The African Union was rated highly on *reach and influence* and this was not surprising given the political legacy and mandate of the organisation. However, there were questions on the AU's *flexibility* and *clarity of operational procedures* with many respondents claiming ignorance on how the organisation functioned, and bemoaning its reliance on donor assistance, especially for its technical programmes, of which biosafety was one. There was a feeling that this left the organisation vulnerable to external influences, the same which would then be passed on to countries of the continent. Not surprisingly, the organisation rated relatively lower on *resource endowment* and *capacity to deliver*.
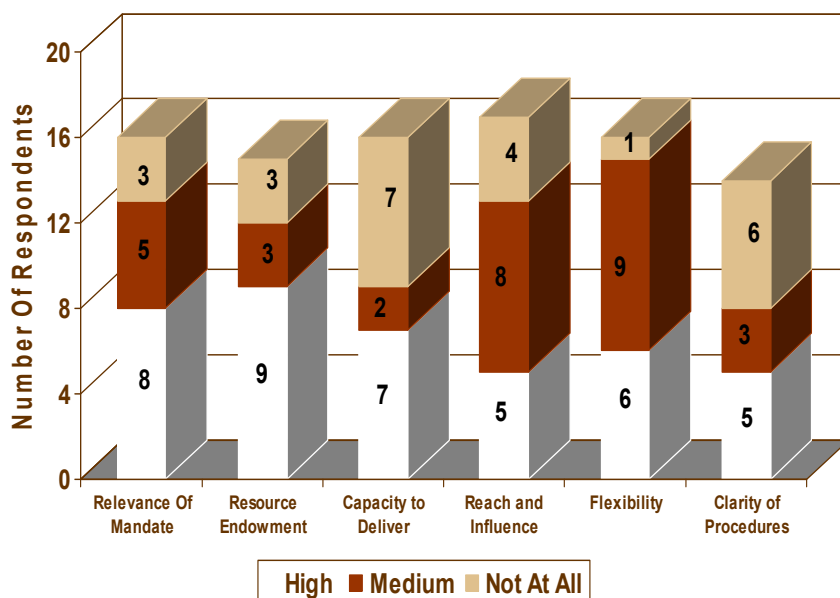
Fig 10: Views on NEPAD

NEPAD was rated proportionally higher on all the issues, especially *resource-endowment* which respondents felt the organisation could exploit both to enhance its influence on the region and to help countries mobilise resources for their programmes. NEPAD programmes were implemented mainly through regional economic communities (RECs), and respondents argued this would endear the organisation to the SADC countries only to some extent. The persistent and potentially negative effect of the nationalistic perspective would be countered effectively only by dealing directly with the national aspirations. On the other hand, the newness of the organisation was seen as a positive factor in the policy arena by some respondents, while some felt the organisation was getting more publicity than what its impact on the ground merited. The following comments by two respondents from regional NGOs capture this dichotomy:

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One …

>*"As a new initiative, NEPAD can tackle the new challenges related to biotechnology and ensuring harmonization of the policy frameworks without running into the bureaucracies of the established organisations"* [Ngo8 (OR), Jul 2007].

The other …

>*"At international level this organisation (NEPAD) is considered as the most active and appropriate one for steering the process (because, for example, most resources from international donors are channelled through NEPAD) and yet on the ground there are only a few activities and even these are at what I would call **very academic research levels.** The channels of communication with the stakeholders are not clear hence they are not visible at regional level"* [Ngo4 (R), Mar 2007].

The need for the organisation and its programmes to be understood clearly and to be more visible to the stakeholders was clear from the latter statement. NEPAD also had greater links with the former respondent's organisation hence the respondent appeared to have a clearer picture of how it (NEPAD) operated. These differences were taken as realities that happen in any policy arena, and that such realities could affect efforts by different actors in the policy arena to develop effective synergies. They will be discussed in more detail in chapter 8.
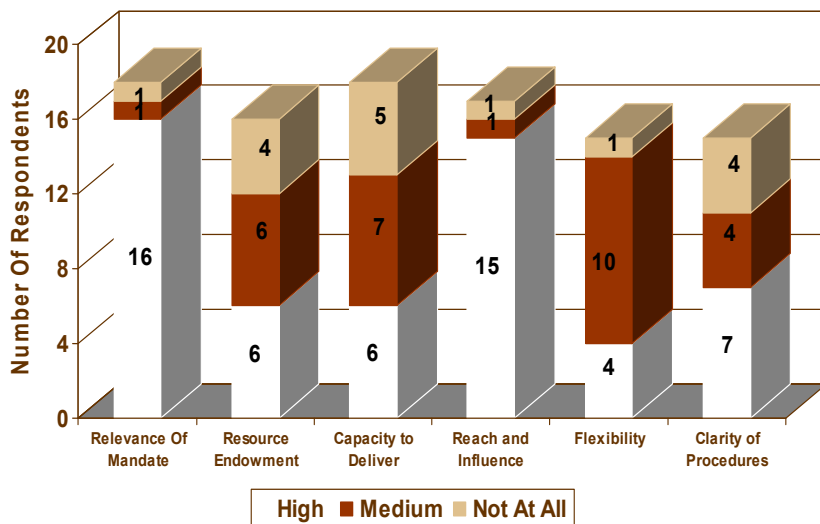
Fig 11: Views on SADC

SADC is the regional economic community for the 14 countries of southern Africa whose systems the three SNOs were trying to converge. The organisation was rated very highly with respect to *relevance of mandate* and *reach & influence*, and this was in no way surprising given the organisation's closer and more specific focus on the region, when compared with the other organisations whose mandates are continental. The following responses from a researcher in a regional policy analysis network, and a director for a regional NGO respectively capture this sentiment:

First …

> *"The mandate of SADC is cross-cutting and therefore issues to do with convergence of biotechnology/biosafety policies should be seen as part and parcel of the SADC activities and interventions. The human and technical capacity of SADC to deliver might be low but experts can be drawn from various scientific and policy institutions in the member states. SADC as a sub-regional body made up of several Member*

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States enjoys significant political clout and influence. Various policy organs of SADC, for instance, the Council of Ministers or the Heads of State Summit are powerful decision making bodies. The flexibility to make decisions or adjust to changes swiftly might be lacking because a common understanding and in some cases consensus among Member States has to be reached" [Res12 (OR), Mar 2007].

Second …

"In southern Africa, SADC is the most appropriate institution to steer the process, although there is no specific mandated office to deal with biosafety issues and no resources specifically allocated to the process and hence the issue seems confined to peripheral levels".[70] [Ngo4 (R), Mar 2007].

However, in contrast to the high ratings on *mandate and influence*, and as mentioned in the responses cited above, there were some question marks over the organisation's *resource endowment, capacity to deliver* and *flexibility*. The three were all said to revolve around the issue of resources, especially the limited commitment of resources to technical programmes by the organisation. As with the AU, there was a heavy reliance on external funding, to the extent that the much-touted Advisory Committee on Biotechnology and Biosafety, and the multi-country fact-finding mission which preceded it only happened through donor funding, and had to end prematurely when the funding ended[71]. This notwithstanding, looking at the broader developmental issues on the continent, championing of the convergence agenda by SADC falls in line with the RECs-led development paradigm being talked about in the two

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[70] Highlights the need to fill this gap in regulatory capacity with 'leadership and influence' … see Beach, 2005
[71] The SACBB activities were rekindled in November 2007

other SNOs and other bodies on the continent. And as one scientist from a scientific and industrial research body echoed *"the SADC should do this (steering the convergence) with help and support from the other two bodies" [Res18 (R)].* However, getting the three bodies and the whole multiplicity of players to work together was a tall challenge given the different competition dimensions overarching their relations, not least the struggle for financial resources and the quest for recognition.

On the question of who had contributed the most to the convergence, an aggregation of the responses yielded the following picture:
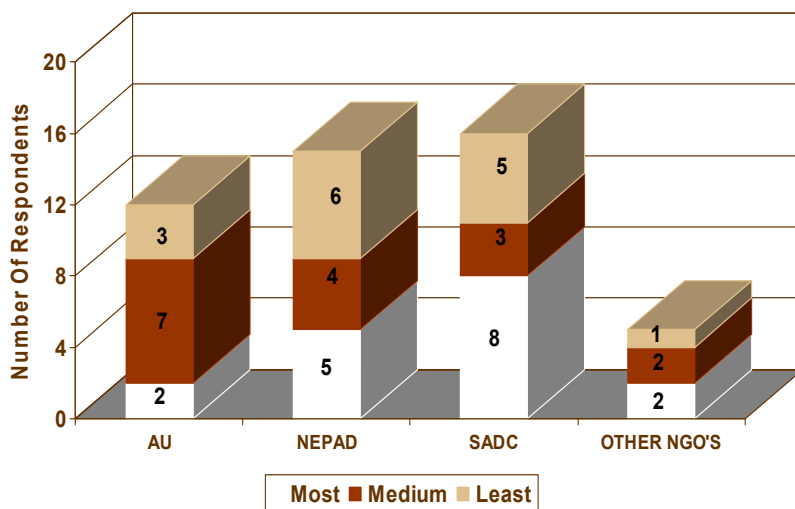
Fig 12: Opinions on which SNO has contributed the most to policy convergence in the SADC

Most respondents indicated that SADC had contributed the most to the convergence of biosafety systems in the region. This was mainly through the guidelines developed by the

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SACBB, and various workshops and experience-sharing platforms that were held under the auspices of the SADC since discussions on regulation of modern biotechnology started in the 1990s. These were more suited to the needs of the region, compared to the activities organised by the other two SNOs, which were not only few, but were more generic and designed to address continent-wide challenges. However, while this was the overall picture, there was recognition that there were many confounding factors, for example, the RECs-led development agenda which had meant that some discussions on biosafety initiated by the other two bodies were taken to southern Africa through SADC structures. An example was given of some discussions of the African Model Law on Safety in Biotechnology, an AU initiative, which were held in SADC-led workshops [Res1 (S) Jul 2007]. There were also some NGOs which had done some work in the region, and whose contribution some respondents could not separate from that of the three SNOs. However, all issues taken together, the need for a coordinated and consistent convergence agenda was said to be more important for the region; as one respondent, an international consultant on biosafety summed up;

"All three have done significant work in the area of biosafety and biotechnology. However, a consistent, continuous effort does not seem to emerge yet. In addition, convergence among regional and subregional organizations will be required to ensure that efforts are not scattered and uncoordinated (as at present)" [Res24 (OR), Jul 2007].

The need to recognise and take stock of the various convergence efforts was also underscored, and was seen as one way towards getting more stakeholder commitment to the

agenda through recognition and institutionalisation of their efforts. A respondent from one of the SNOs recognised the many other players and the need to pool all efforts together;

"Many organisations have proposed convergence of biosafety/biotech policies. However in my opinion the issue at hand is how far these proposals have been implemented in national systems. Africa has yet to benefit from the various models, guidelines and strategies developed. Harmonization of efforts should be prioritized also considering the strong common positions that already exist on biosafety and biotechnology" [Pmk13 (S) May 2007].

The contribution of the many other actors was recognised by this research as a confounding factor from the start of the research. The importance of abstracting and quantifying the contribution of the three SNOs remained important in light of their increasing contribution to national and cross-national policy processes. What this research did was to unearth the realities and challenges facing the SNOs in the policy-making efforts, and brought to the fore the extra tensions they bring to the policy field, over and above the bargaining and knowledge-sharing power they brought to the collective situation the countries were facing.

6.9   Concluding remarks

This chapter has provided stakeholder accounts on the research theme and various aspects of the efforts by the three SNOs towards attaining cross-national convergence of biosafety systems in the SADC. Unsurprisingly, the narrations differed along many lines, for example along the lines of a respondent's profession, institutional affiliation, level of technology use in their country among others, and predictably the levels of difference varied with the

different aspects of the policy issue. The different opinion shapers and the attendant responses form part of the context in which the convergence is envisaged to happen. It was important therefore that these be presented as done in this chapter to bring out and lay bare the issues as confronted by the SNOs and other policy champions in their endeavour to influence processes in the region. Among the issues that emerged from the stakeholder accounts, and confirming observations from the earlier contextual analyses, were the importance of ownership of the policy process by the stakeholders. There were however, multiple perspectives on how these processes should emerge and proceed, and even more contention on what the outputs of the processes should be. By and large, stakeholders saw a role in both processes and outputs for voluntary, uncoordinated and legally-binding approaches. The narrations also confirmed that the three SNOs had different capabilities and factor endowments, which they could deploy singly and/or collectively to navigate around the policy challenge. This thesis now proceeds with a closer look at the different understandings of convergence as obtained from stakeholders and from the various policy documents that were consulted in the data gathering process. This serves to further contextualize the convergence agenda, and to move towards consolidation and discussion of the emerging mechanisms towards bridging the various knowledge, power and interests boundaries with the guidance of the research framework.

**CHAPTER 7   UNBUNDLING THE VOICES 1: Multiple understandings of
biotechnology policy convergence in southern Africa**

*'One can endeavour to show whether definitions 'homogenise' a problem, that is to
say make the problem understandable within a reified perception of the wider
problem field, or whether definitions suggest a 'heterogenisation' that requires an
opening up of established discursive categories' (Hajer, 1995: 54).*

7.0   Introduction

The importance of a common understanding or definition of a problem serves as one of the
key initial steps in the development of appropriate responses to collective-action problems
(Hilgartner and Bosk, 1988). Yet, as revealed in the previous chapter, biosafety stakeholders
in the SADC region had different views and opinions on various aspects of the convergence
process, including different understandings of what convergence is. The objective of this
chapter is to discuss the conceptual and practical meanings of policy convergence in southern
Africa within the context of cross-national biotechnology regulation. In line with the
overarching research question for the study which is seeking an understanding of the roles of
three SNOs in emergence of cross-national policy similarity, this chapter presents and
discusses, as underpinned by the context presented in earlier chapters, the possibilities of the
different understandings giving way to a common regional understanding and transnational
governance structure.

As already alluded to, the analysis of the ways through which the three supranational
organizations, NEPAD, AU and SADC were influencing the cross-national biotechnology
policy convergence process in the SADC, among other issues revealed that there were
different understandings of policy convergence within the various actor groups, and that
these were likely to have varying impacts on the progress towards convergence. This chapter

advances and discusses the implications of these multiple and fluctuating understandings on the progress towards the potentially converged systems and on established theoretical perspectives within realms pertinent to policy studies such as systems, institutions, regimes, actor coalitions and networks.

7.1   Why a look at the multiple understandings is important

A look at the reasons for, and implications of existence of multiple interpretations of convergence was seen as an important component of the quest to understand the convergence processes given the different ways in which this issue was presented by stakeholders and in policy documents. This was also because from the onset, the divergent understandings and perspectives were seen to represent essentially why there was need for convergence in the first place. This is akin to the rationalist notion that 'problems create the incentives for their solution' (Haas, 2004). Like many other policy arenas, the biotechnology or biosafety arena has a wide range of issues and it was hardly conceivable for there to be an organization with the mission and resources to be able to tackle all the pertinent issues [Pmk9 (R), Mar 2007]. As Haas (2004) explains 'the efficiency gains from relying on one single source of policy advice are more than offset by the loss of legitimacy, analytic blinders imposed by relying on just one institutional source … and the political doubts of bias …'. The divergent views were thus inevitable and represented the reality on the ground. The purpose of this analysis is to situate the theory and the practice within these realities in order to enable an evidence-based decision formulation process. One main interest was to understand how achievable the convergence agenda was in the backdrop of these divergent understandings, at what cost to the holders of the different perspectives; recognising that stakeholder pressures influence

policies (c.f. Chataway *et al*, 2006), and more pertinently for this study, what role the three SNOs played in navigating around these different and fluctuating understandings.

7.2   Identifying the different understandings

The different meanings associated with convergence were identified based on an analysis of documents from various institutions taking part in efforts towards development of converged systems and from the narrations by stakeholders given in Chapter 6. Analysis and interpretation of responses from policy makers, researchers and other stakeholders in the SADC region and beyond were also done. An evaluation of both the formal and informal discourses on biosafety and in the broader science and technology arena was carried out in order to gain a wider understanding of the issue. One of the main difficulties with this task was that in their day-to-day work on biosafety issues, stakeholders hardly referred to their work in convergence terms, and in some cases biosafety was not a prominent issue on the day-to-day policy agendas (see section 2.6). However, it was for these reasons that an understanding of the various conceptual and practical meanings of convergence was sought. As explained elsewhere, it had emerged from earlier interactions with the various stakeholders and operatives in the policy arena that the process employed in the drive for convergence was more important than the envisaged convergence itself. Issue framing, in this case interpretation/definition/understanding of convergence, was part of the process towards the desired end.

7.3   The understandings emerging

Using discussion and interview results and observations from the interactions with stakeholders, a compilation of different meanings or accounts of convergence was developed.

The understandings have been classified according to a number of factors (see Table 6) before a further elaboration on the issues is given.

Table 6: The different understandings of convergence as observed from stakeholders

Description	Scope	Main stakeholders behind understanding	Categorization (Broad or Narrow focus)	Organization where particular focus is dominant
Output-focused[72]				
Convergence on biosafety and allied issues	Risk regulation and technology development	Scientific R&D institutions	Broad focus	NEPAD
Convergence on biosafety only	Risk regulation	Policymakers, food relief agencies/civil society organizations	Narrow focus	AU, SADC
Convergence with respect to risk assessment only	Risk regulation	Policymakers, food relief agencies/CSOs	Narrow focus	AU, SADC
Implementation at regional level	Collaboration with neighbouring countries	Regional bodies, scientific R&D institutions	Broad focus	AU, NEPAD
Implementation at national level	Focusing on serving national interests	Relevant government departments	Narrow focus	SADC

Process-focused[73]				
Co-evolution of technology and regulations	Risk regulation Technology development	Regional bodies, scientific R&D institutions, relevant government departments	Broad focus	NEPAD
Convergence on regulations only	Risk regulation	Policymakers, food relief agencies/CSOs	Narrow focus	AU, SADC
Involve policy makers only	Focus on the top	Policy makers, food relief	Narrow focus	SADC

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[72] Referring to the policies/regulatory systems
[73] Referring to the path being followed to come up with the policies or regulatory systems

		agencies		
Involve all key stakeholders	Broad stakeholder consultation	CSOs, some government departments	Broad focus	NEPAD
Stepwise in terms of geographical and institutional coverage	Structured and bottom-up focus	Regional bodies, R&D institutions, policy advisers	Narrow focus	All three reflect this at certain stages
Holistic and all-encompassing approach through and through	Combinations of approaches	Regional bodies, R&D institutions, policy advisers	Broad focus	As above

The different understandings above represent various dimensions of issues around convergence; among them being **what** should converge, **who** should be involved in the processes towards convergence, **where** should convergence take place, **how** should convergence take place, **why** should convergence take place? The characterization as broad versus narrow or process-based versus output-based perspectives of convergence was based on the different opinions or responses to these clusters of questions (see chapter 6). Narrow-focused understandings are defined as those looking at convergence of regulations only or the practice within the technology only, while the broader understandings cover both the technology, the regulations and pertinent issues in allied areas such as seed laws and intellectual property rights. Narrow-focused understandings also propose limited time scales and geographical scope with respect to feasibility of convergence. Process and output-based accounts, on the other hand relate to the different ways of achieving convergence (the process) and the resultant policy or regulatory arrangements (the outputs). Many issues emerge from this typology and also from the perspectives behind this representation, and these will be looked at more closely.

7.4   Further analysis of the emerging understandings

The distinctions between the broad against narrow (or process versus output-based) accounts with respect to the responses to the clusters of issues above were not as clear-cut as shown here, and this was due to a number of reasons (cf. Carr, 2006). The following were some of the reasons behind the different and fluctuating framings:

- Unclear understanding of terms

On one extreme, there were policy actors who did not seem to fully understand the meanings of the terminologies they used and the differences between them and other related terms. One researcher from a scientific and industrial research and development institution in Zambia indicated that he 'was confused as to whether what is required is consensus, unanimity or coherence …', though he 'felt the desired end is to have regulatory systems that speak to and understand each other' [Pmk3 (R), Oct 2006]. He also bemoaned the lack of arrangements to introduce and equip policy actors adequately to deal with challenges in the policy innovation arena. This was a serious problem in some cases and one of the reasons could be what Alvin Weiberg observed in 1972 about scientists '[that] often they were asked to provide advice that exceeded their formal disciplinary training' (cited by Haas, 2004). There was thus an issue of actors facing the challenge of moving, for example, from being policy implementers to being policy developers, without the necessary exposure and experience. This was particularly so in countries with fewer numbers of policy actors, especially smaller countries such as Lesotho and Swaziland.

On the other extreme, there were some policy actors who got locked into certain framings and understandings, mainly for legitimacy reasons. This was particularly the case with

process-based accounts. For example, multistakeholder or participatory processes seemed to be the mantra for civil society-driven processes, and whether or not this brought the required efficiency might be quite another issue. Mark Considine (2005: 67) characterised some of these as 'accepted rhetoric … or ideas in good currency'. The following observation in August 2006 from one coordinator of a regional biodiversity programme in the SADC typified this dilemma:

''Let's not forget that there are two key issues here; the problems exist here, but they are identified (from) elsewhere, and the agenda to address them is set elsewhere too. So we have to comply ... with the problem-packaging and the solution-packaging'' [Ngo1 (R), Jul 2006].

- Rivalries and alliances

Contested power, competence and legitimacy issues between and among institutions also led to some institutions and/or individuals wanting or adopting certain framings at the expense of others. The same was also true where institutions wanted to identify with the practices in another institution, to the extent of adopting similar practices. For example, NEPAD is one organisation whose issue framing some national organisations wanted to emulate because they associated this organisation with resource-endowment, 'which enabled things to happen on the ground' [e.g. Res5 (R), Apr 2007].

- Mandates and missions

The mandates and missions of different institutions also had a major influence on how they framed the convergence issue, and this in turn depended on the actor coalitions around each

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institution and the issue at hand. Fluctuations within the actor coalitions sometimes resulted in fluctuations in framings, and this was exacerbated by the constant movement of policy actors among institutions for employment purposes. Further complications on this emanated from the fact that the different actors were at various vertical and horizontal levels, ranging from institutional, sectoral and national to international levels.

- Varying demands on convergence of ideas

The level of interdependence among institutions varied considerably in space and in time, and this led to constant shifts in the understandings. For example, in international fora (e.g. negotiations and discussions under the Biosafety Protocol) institutions that were ordinarily rivals within the region were often compelled to present a unified agenda, and this caused a temporary, though sometimes permanent shift in the understanding. On the other hand, allied institutions could present divergent faces as a way of trying to develop some unique selling points for their programmes. One respondent from a biodiversity support programme in the SADC region indicated that;

''when all factors have been taken together, our agendas and the way we discern and implement processes is influenced more by providers of funding, than by the local policy communities we intend to serve ... our own visions vary with those of the providers of funding'' [Ngo1 (R), July 2006].

- Resources

Linked to the issue of mandates and mission, was the issue of resources for implementing programmes. Many institutions and programmes had to contend with a narrow remit of issues

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because of restricted resources. Resource availability thus dictated how stakeholders or clusters of stakeholders should understand an issue, in the process influencing what was deemed feasible. On the other hand, some authors have argued that availability of resources could propel development towards a common pattern despite disparate politics, ideology and culture (McGaughey and Cieri, 1999).

- Mobility of policy actors

Then there was the issue of policy actors moving from one policy arena to another, either in pursuit of new employment opportunities, or as part of the routine 'surfing' to fill capacity gaps (cf. Hilgartner and Bosk, 1988). This not only led to a continual fluctuation of the understandings of the issue among groups of actors, but further blurred the distinctions between the different categorizations of understandings.

- Linking back to the technology

The scope of issue framing within the technology arena also influenced how policy convergence was framed. Schattschneider (1960) talked about policy entrepreneurs engaging in 'venue shopping', i.e. searching for arenas from which to frame policy problems, and that the policy entrepreneurs might themselves 'limit the venues in which they set their feet'. Different actors might seek access to different types of venues (Pralle, 2003), and this illuminates how public problems are a result successful imposition of problem definitions by one group on others (Hajer, 1995: 54). In the SADC region, for many policy actors, biosafety was about safe application/use of products of modern biotechnology, while to others, it was about ensuring safety of all 'biological' products (Kelemu *et al*, 2003; see also section 5.6.3). Science and scientific knowledge were key venues in both cases, but the extent to which

these were explored and incorporated in the science-policy nexus differed because of the different levels of focus on the science. These different framings resulted in what Schattschneider referred to as issues being 'organized into or out' of politics. In the final analysis, this had a bearing on both the process-based and the output-based accounts of convergence.

- Intermittent links

For the different conceptualizations advanced, there was an intermittent relationship between the conceptualizations and the different stakeholder clusters and also with the respective regulatory systems in the different countries. This was primarily because the challenges being faced were introducing new shocks to the existing national systems and no stability had as yet been achieved.

However, while the above fluctuations were acknowledged, it was clear that certain institution- and country-specific conditions influenced understandings towards certain policy positions/conceptualizations. Appreciation of these drivers was crucial for shaping interventions within the multi-actor arena. For example, there were institutions and countries which had a long tradition of being risk-averse, and always waiting for technologies to mature before they could take them on board, for example Zambia and Namibia [Mtg3, Nov 2006; see also section 5.6.2]. Such countries and institutions were not surprisingly more towards the narrow, country- and biosafety-centric measures. From this scenario it emerged that a country or an institution's capacity to create, acquire, accumulate, diffuse and utilize scientific knowledge also had a strong correlation with the breadth of their understanding of the issue, although the leadership influence of some countries and institutions may conceal

these shortcomings, leading to countries adopting certain policy innovations even in the backdrop of weak national systems (cf. Considine, 2005: 55).

7.5 Impact of the multiple understandings on practice and theory

As mentioned elsewhere in this thesis, this issue of cross-national policy convergence, looking specifically at biosafety in the SADC region, locks into a number of practical and theoretical perspectives around convergence. These include international relations, organizational and institutional theories, coordination theories (for example the game theoretic model) and systems theory, among many others. For example, taking science only as a policy venue, the leeway for venue shopping was likely to vary across countries, across other sub-national arrangements, and among policy actors (Renn, 1995), and as a result, many theoretical perspectives were seen to have explanatory power. This essentially reflected the broad, all-encompassing and integrative nature of biotechnology/biosafety issues, and the various forces pitted against each other in the social construction of public problems. However, this analysis was narrowed down to a few perspectives given the main force behind these multiple understandings, i.e. the movement of actors within the policy arena. The understandings were also being influenced by the issue of capacity, and the expectations of resource inflows as well as speedy implementation of activities which were stimulated by how the issue was framed, and this also had a bearing on how the convergence mechanisms.

7.5.1   Much room for multiple interpretations

The definition of policy convergence as the tendency of policies to grow more alike, in the form of increasing similarity in structures, processes and performances is in itself broad and

leaves room for multiple interpretations (Drezner, 2001). It is also possible that a growth in similarity of structures, processes and performances may not necessarily be a result of increasing similarity in policies, and a mere look at the superficial level may not reveal this. There were many terms used particularly in policy documents in the expression of the desire for, or explanation of, how countries or institutions were working together, which at face value could be interpreted to imply existence of, or desire for convergence. However, without impacting on the policies underpinning the processes, these understandings could not denote policy convergence, although they could serve as precursors for policy convergence. Examples here included *cooperation*, which is defined as the antithesis of competition, and where people or greater entities work in common with commonly agreed upon goals and possibly methods, instead of working separately in competition. Policy convergence is not a necessity for cooperation to happen, but in turn, cooperation may eventually lead to policy convergence (White, 1996: 45). *Coordination* is the process wherein units work together to achieve outcomes for shared stakeholders, quicker and more cost effectively than if they worked on their own, without having to change the "how" codes of any of the participating units. Again, this entails that policy convergence is not necessarily a precondition for this to happen, but it would certainly enhance the coordination (White, 1996:56).

Other terminologies that were used by policy actors in policy discussion fora and in policy documents included 'integration', 'joint action', 'rationalization' and 'policy coherence'. All these have different conceptual and practical meanings. This implies that there was a likely danger of stakeholders using them synonymously with desires for similar policies, which might lead to inappropriate methodologies being adopted towards the desired end. This consequently might curtail new impetus in cases where these terminologies were used in

conjunction with new technologies or new challenges from established technology (Tumushabe, 2005, AATF, 2006).

7.5.2   Limited overlap and blind spots

Another issue that seemed to emerge among the stakeholders as a result of these multiple understandings was the proverbial '*too many cooks ... spoiling the broth*'[74]. This manifested itself in a number of ways, for example, some aspects within the full integrative range of issues around biosafety were left unattended as actors jostled to occupy arenas that attracted funding, and from which they could easily make an impact. One respondent was convinced '*this was why, for example, many organizations tended to occupy the biotech/biosafety information dissemination arena where it was easier to leave a mark*' [Res27 (S), Jul 2007). Concurrently, the same organisations would be looking around and believing that someone among the many players would take up the remaining issues. A number of gaps also existed within both the vertical and horizontal dimensions of the issue (Shaffer and Pollack, 2004). Often this was not because the information or other attributes to fill those gaps were not there, but because of a lack of obligation among the various players to take forward what the player at the other level (lower or higher) has done. This issue is best explained within the social arena of problems (cf. Hilgartner and Bosk, 1988), where multiple perspectives may not overlap enough to cover the issue area adequately.

While talking about the teaching of the so-called new and 'authentic science' (as opposed to traditional science), Roth (2001) alludes to enculturation that might lead to the acquisition of conceptual blind spots and prejudices as a result of trying to get students 'to do the real stuff'. The desire to want to 'move with the time' with respect to issues within the discourse on a

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[74] Own emphasis

given issue sometimes leads to an exclusion of other key considerations, leading to poor delivery at the end of the day. Ray Dart[75] (2006) also talks about such blinds spots in the non-profit strategy process, where emphasis is placed on organizational and programme strategy, leaving out change models and intervention strategies. It is crucial that when the different understandings of convergence are brought together, such blind spots are minimized.

The public arenas model on the rise and fall of social problems (Hilgartner and Bosk, 1988) looks at the issue of stakeholders 'jumping' from one policy domain to another, and also how dramatization is crucial in getting a policy issue to attract the necessary attention in the midst of competing interests. These perspectives are crucial in explaining and understanding what is happening in the issue at hand, and in devising an appropriate way forward. In this case the particular challenge was on how the issues came together at regional level, bearing in mind that the dynamics were different from those at national level. There was what Hilgartner and Bosk term 'problem amplification beyond predictable levels'. Issue novelty and policy arena saturation dynamics also vary as different jurisdictions are brought together. This inevitably leads to different understandings of the issue at hand. The public arenas model of looking at the rise and fall of social problems thus provides useful insights in the dynamics of framing the biosafety policy convergence problem. One of the key questions therefore remains how one dramatizes an issue which is at different agenda levels in space and time, ensuring consistency of meaning at the different levels.

There is also a wave of expectations created around the different issue framings, for example those around NEPAD as mentioned earlier. A combination of the framings and the new technology created an even higher sense of expectation amongst the intended beneficiaries of

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[75] Ray Dart, Paper Number PA061238, Trent University, Peterborough, Canada

the planned interventions. Expectations play a crucial role in resource mobilization and galvanizing actor groups (Borup *et al*, 2006). It was therefore important that these different understandings, and the expectations they elicited among stakeholders were understood, so that the envisaged purpose of bridging or mediating across different knowledge, power and interests boundaries and levels could be better managed. It was also important to note that some kind of a prisoner's dilemma existed amongst the different stakeholders and the interpretations that they held. Stakeholders were not sure what impact their independent pursuit of self-interest (i.e. their framing of the issue and the attendant implementation mechanisms) would have on the bigger policy community of the region of which they were only a part (cf. section 3.2). As a result, actor communities were finding themselves undecided on what route to take given the various and fluctuating forces around the issue. Consultation among the different stakeholders and feedback on their interpretations of the policy process were therefore crucial in building synergies.

7.5.3   Coming together

This chapter has highlighted that what might appear to be mere differences in semantics, or different expressions of the same desire, may in the long run have telling impacts on how 'visions' or 'imaginings' could be translated into tangible outputs at the policy level. In the final analysis, therefore the challenge was to try and understand the ways in which these fragmented perspectives may eventually come together towards the envisaged collective action. In other words, was it possible for convergence to occur in the backdrop of multiple understandings of convergence? This has an implication on how the convergence can be

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achieved, and how sustainable the converged systems would be. Did the different understandings at some stage have to pave way for a consensus[76] position?

Social constructivists have shown that 'various actors are likely to hold different perceptions of what the problem really is'. However, as Hajer (1995: 44) alludes to in analysis of discourse around environmental dilemmas, it is important to 'understand why a particular understanding of the environmental problem at some point gains dominance and is seen as authoritative, while other understandings are discredited'. This chapter has presented and analysed the different ways in which the biotechnology policy convergence problem was presented, and the emergence of social coalitions around specific understandings. The three SNOs had to deal with these in influencing the emergence of a cross-national regulatory framework.

7.6   Concluding remarks

This chapter has argued that knowledge of the different understandings of convergence is crucial, and this is not for the sake of eliminating differences between these understandings, but in order to avail evidence of the existing realities to the policy making process in order to inform the responses. The prevailing understandings of policy convergence in biotechnology or biosafety in the SADC region hinged on a number of issues ranging from institutional missions and mandates, institutional and individual capacity issues, resource-related issues, and the ever-present challenge of legitimacy which faces institutions, processes and

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[76] Consensus is a term widely used by policymakers and other actors in the region; and largely denotes being in complete harmony or agreement, but the difficulties of attaining this are clear from the tensions around the whole cross-national convergence agenda described in this thesis (e.g. the Prisoners' Dilemma and Fallacy of Composition explained section 3.2). Further work will be done to understand this concept, which Marxists criticize as 'perpetuating class rule, and attempting to disguise the extent of conflict in society'. Alternative concepts such as accommodation, collaboration, compromise and others will be explored.

programmes. This discussion has looked at how these issues were at play in the SADC region, and how it was in the best interests of both policy actors and researchers, not least the SNOs, to understand the context as a way towards ensuring a better link between research and policy. The next chapter looks at and discusses further the motivations behind these understandings and the narrations on convergence as given in Chapter 6, before chapter 9 brings all the emerging issues around '*the whether, to what extent and how*' of convergence together through the lens of the Busch and Jorgen typology.

Chapter 8   UNBUNDLING THE VOICES 2: Motivations for and against convergence of biosafety systems in the SADC

> *'Instead of thinking about policy as a routine engagement between certain public officials and a settled retinue of established interests, we are now forced to consider how a single system is constructed from semi-independent institutions and actors linked by resource agreements, joint agreements, joint projects and cross-border engagements ... it is really composed of pads of unequal size, each contributing to a characteristic policy 'footprint' (Considine, 2005:127).*

8.0   Introduction

In the backdrop of the stakeholder accounts and understandings of convergence given in the last two chapters, which reveal the various practical and conceptual boundaries the SNOs had to deal with in influencing the cross-national policy convergence agenda, this chapter explores and analyses the actors' motivations and fears around the drive towards convergence. These fears and motivations represent the different cognitions creating or emanating from the context as represented by the narrations and the understandings given in the last two chapters. As presented in the earlier chapters, and further argued in this chapter based on emerging empirical evidence, there are contending views in the region on whether convergence is a positive, zero or negative sum game. By analyzing who expects what from the convergence, how long each representation has persisted in the policy arena, among other aspects, this chapter sheds more light into this quandary, and further illuminates the various opinions captured in the last two chapters. Apart from looking at the representation of the issues by the different actors, this section will also look into the agreement and/or variance between belief and action, the responsibility dimension for the different views held, and for the actions needed to move processes forward. Other issues to be looked at include the changes in the motivations and fears as fluctuations occur within the bigger policy arena and

how this affects the attainment of convergence. With respect to the SNOs, categorization of which organization has a particular inclination will be done as a way towards uncovering the similarities and differences between the different players, and capturing how all these different motivations and fears facilitate or hinder different mechanisms for the spread of policies across different boundaries.

8.1 Theoretical perspectives

As given earlier, cross-national policy convergence is defined as the increase in policy similarity between countries over time (e.g. Bennett, 1991). Policy convergence thus constitutes results of a process in which countries are assumed to have moved from varying positions towards some common point. While knowledge that national policies have converged is useful, it remains silent about the motivations behind the convergence, and the mechanisms through which the convergence has been achieved. Therefore, among the many interests of this research was the illumination of the motivations for or against convergence among the countries of the SADC region. This chapter links the empirical evidence presented in previous chapters to key theoretical perspectives in highlighting and discussing these motivations, which emerged in discussions with stakeholders and observation of policy processes in the region.

A number of theoretical perspectives come to the fore in this chapter in the effort to bring out an understanding of the different argumentations around the issue, and more importantly how they impact on the convergence agenda. From the onset, it emerged that the framing of issues in the discussions around cross-national convergence of biosafety systems mirrored the same hopes and fears as seen in the debates around the science of biotechnology itself. There was a

prominent cluster of issues around the newness of the technology, and the expectation that it had built across societies (see also section 3.1). Negative impacts of some of the 'failed' [Ngo6 (R), Mar 2007] promises of the technology (for example promises of increasing agricultural productivity and reducing hunger and poverty) were said to await its regulation. Past failures of the organizations being studied, and their programmes, including even other unrelated science and technology programmes, were all lumped together as sure-bet impediments to the convergence agenda. On the other hand, pro-convergence respondents also highlighted success scored by the technology (e.g. GM cotton in South Africa, disease diagnosis and therapeutic remedies, among others) and by the organizations as pointers to potential success of the convergence agenda. All these framings and argumentations are presented and analysed from a sociology of expectations in science and technology perspective (Borup *et al*, 2006). The risk colonization theory is also used, among many other perspectives, to illuminate the different motivations shaping the convergence discourse.

8.1.1 Sociology of expectations

Societal views on new technological developments are shaped by events and experiences that they have gone through in the past (Borup *et al*, 2006). These embedded images create favorable expectations or negative perceptions about development, resulting in significant impacts in the institutional and policy process to receive and accommodate the new developments. As was mentioned in section 5.2, in this research, the close link between framings around the technology, and those around its regulation made a look at how expectations around science and technology shape people's understandings and framings of policy change worthwhile. Expectations are defined as wishful enactments of the desired future (Borup *et al*, 2006). They are both positive and negative and the way an intervention is

framed defines the expectations around it. Expectations and visions are not constant; they vary in space and time, and they span as well as bring together different groups within a society (Considine, 2005: 23). These groups and the linkages that they form may vary say from country to country, making it difficult to predict how given groups of stakeholders would perceive certain technologies. However, with the rise of the knowledge society, knowledge has become a central driving element and there is also an increase in the amount of communication across institutional and epistemic borders (Borup *et al*, 2006; Evans and Davies, 1999). This is expected not only to result in an increase in shared visions and meanings across frontiers, but across disciplinary boundaries and knowledge networks as well (Stone, 2000). Professionals in different disciplines have been seen to reach beyond the borders of their own specific fields of expertise and establish relationships with wider and more heterogeneous networks of potential collaborators. For this study, these dynamics were seen as factors with a potential to facilitate the coalescing of motivations in the cross-national convergence agenda. The presentation of empirical findings which follows looks at the complications around the issue, and how the different and fluctuating expectations come together towards the desired convergence.

Among the factors known to facilitate cross-national policy convergence, is the existence of a unified policy community, gearing towards the envisaged output (Gertler, 2001; Drezner, 2001). Members of this community all recognize the problems occasioned by the existing fragmentation, and are all prepared to set aside conceptual differences for the greater good of the region through a consensual transnational governance framework. In the SADC, one challenge to the existence of such a unified policy community was that in the countries themselves, there was no organizational, sectoral or national consensus on the issue and

expecting these differences to suddenly disappear at the regional level was labeled by one respondent as 'a heroic dream' [Res21 (S), Apr 2007]. The tensions and contentions would only be elevated. The fact that the policy communities and policy networks in countries differed also affected the knowledge exchange that should happen between these stakeholders across countries, prior to the convergence process (cf. Levy, 1997). The absence of uniformity results in discordant communication across countries, a situation that can potentially hamper an already fragile policy agenda.

8.1.2 Risk colonization theory

Continuing with the look at the organisation of the technology and policy debates around risk, another key theoretical perspective around the hopes and fears for convergence is the risk colonization theory. This theory is used here to build on to some of the issues illuminated by the sociology of expectations; but looking specifically at the distinction between societal risk and institutional risks. Risk colonization theory contends that 'risk has become an increasingly key organising concept' or has 'colonised' debates about regulatory regimes and extended governance systems, so that we can also talk broadly of a 'risk society', where we have become concerned with 'risk management of everything' (Power, 2004). According to Rothstein *et al*, 2006, institutional risk refers to 'threats to regulatory organisations, and/or the legitimacy of rules and methods of regulation'. As mentioned in the previous two chapters, one key issue that was mentioned by almost all the respondents throughout this study was the importance of the *process of obtaining convergence,* as opposed to *the actual convergence itself.* Stakeholders were keen on owning and understanding the processes, and seeing that they were addressing their needs, and those of the region. There were thus pressures towards transparency, and accountability of the processes. By stepping onto the podium to champion

the convergence agenda, the three SNOs were exposing themselves to these pressures from the stakeholders both inside and outside the region. In their own accounts of issues around the convergence process, some operatives from the SNOs also acknowledged this double focus on their systems and the technology itself, and the net result it had of raising stakeholder expectations on the issue [Res27 (S), May 2007]. Some respondents also felt that there was too much fragility at the regional policy making level, including the continuous shift by governments to new and more pressing policy agendas. This further heightened the risks that champions of this agenda faced of losing their reputation as a result of failed deliveries, e.g. from lack of resources, and lack of general stakeholder as well as political commitment to see through the processes.

The objective of illuminating the different motivations with the above perspectives is to enrich the assessment of their impact on the convergence, and to develop an understanding on how the SNOs and other players might be dealing with these issues. A number of facilitating factors for policy convergence have been advanced by some authors, e.g. cultural similarity, institutional similarity and socio-economic similarity (Lenschow, 2005), and the existence of a unified policy community (Bennett, 1991). This chapter takes a look at these factors, with a special focus on the three SNOs, and draws up conclusions on the hopes (facilitating factors) and fears (inhibitory factors) around cross-national policy convergence in the SADC.

8.2   Reasons for desiring convergence

The reasons why convergence was desirable were invariably highlighted in the same vein with the reasons why general or broader cross-national cooperation or collaboration was

desirable (cf. ECA, 2006). There was an underlying belief that having similar policy and regulatory systems would improve cooperation and collaboration across various sectors of the national economies (cf. Mugabe, 2001; SADC Review, 2001). In other words, barring different interpretation of similar policies, chances for policy and regulatory conflicts would be greatly minimized if countries had similar policies. With respect to biotechnology, this was largely seen as being even more fundamental because of the high attendant costs for setting up and running sustainable technological and policy systems (Ushewokunze-Obatolu, 2005; Birner and Linacre, 2008). Therefore, while the cooperation agenda had been a key issue in the region for decades, biotechnology was seen as bringing a functional impetus to the agenda (cf. Radaelli, 2000). Pro-convergence stakeholders pointed to some costs which the region had had to bear already because of the fragmented approach to the development and regulation of biotechnology. The political, economic, ethical and social costs of the 2002/03 food aid debacle (Clark *et al*, 2005: 75) were one frequently cited example. The tensions and loss of credibility brought to the scientific fraternity were also another cost highlighted, the former of which resulted in scientists spending most of their time in fora debating biotechnology instead of delivering the science on the bench. The credibility[77] of the science fraternity was highly shaken, especially because of the differences that arose among scientists in some of the countries, notably Zambia (Panos Report, 2005; Omamo and von Grebmer, 2005: 7) and all this was largely attributed to the policy vacuum[78] (Ushewokunze-Obatolu, 2005). The vacuum resulted in many operatives in some of the smaller countries being called upon to make decisions beyond their capabilities (cf. Haas, 1992), stretching and compromising their already fragile positions.

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[77] E.g. meaning power to elicit belief or confidence among different stakeholder groups .
[78] Lack of policy direction or leadership

In the backdrop of the challenges and opportunities brought by the technology, countries had sought to collaborate at different levels in order to bring synergies that would benefit all of them. As mentioned elsewhere, the countries of the region were at different levels of technology utilization and development of the policies and regulatory measures to govern it. This was seen as one ingredient that could give positive impetus towards coordinated development and management of the technology through experience-sharing among the countries. In a world in which developmental disparities are a major driver for economic and technological cooperation (ECA, 2006; Newmark, 2002; also Wilson, 2007 on why knowledge differentials should be a resource not a problem), stakeholders in the region also saw geographical contiguity among the regional countries as a major plus in the quest for cooperation. There was thus a set of imperatives for cooperation driven by this geographical contiguity, where it not only became easier for the cooperation to happen, but the spill-over effects of what happened within the confines of another country also made it mandatory for countries to work together. National borders were porous, and national cultures spanned these borders and shared policy arrangements were seen as one way of adequately preparing national institutions to deal with this reality. This view was in sync with Article 26 of the Cartagena Protocol on Biosafety which requires countries to take into account socio-economic considerations such as impact of living modified organisms on their neighbours before they made their decisions. Converged policy and regulatory systems would thus not only help countries deal with their internal challenges, but would also help them build regulatory and administrative capacity to deal with external challenges and opportunities and meeting their obligations within the regional or global terrain.

The technology also came with many competitive forces, especially from a market point of view where multinational corporations have a strong push (cf. Botcheva and Martin, 2001). Fragmented efforts by countries of the region would not put them in a good position to deal with the forces, argued some respondents from science and technology research organisations [e.g. Res18 (R), Mar 2007]. Cooperation and synergies would help to build the necessary scale economies to position the region not only as a strong force to resist technology and product dumping and other malpractices, but also as an attractive region for favourable technologies and products. Even in the face of countries enjoying different bilateral and multilateral partnerships, many argued that those separate partnerships would benefit from the backdrop of a united and coherent region [e.g. Res6 (R), Aug 2006].

Most of the national economies in the region were too small and too constrained to afford to develop, let alone support the various structures needed for effective harnessing and management of the technology (Ushewokunze-Obatolu, 2005). Cooperation with other countries would enable responsibility-sharing in some of the aspects. One aspect that was mentioned consistently is risk assessment and management, where, because of the geographical and environmental similarities among the countries, it was said to be largely feasible for assessments or measures made in one country within the region to be applicable to other countries. In principle, therefore, capabilities for various technological and regulatory aspects around biotechnology could spread across the region, or clusters of countries within the region and be made available for the benefit of the entire region, and having similar regulatory systems was expected to facilitate this spread. This development mode had been tried successfully in some areas (for example in the customs and excise under the Southern African Customs Union (SACU) where some goods do not need individual

country approvals), and pro-convergence respondents called for the same concept to be tried for biotechnology management. A number of benefits would accrue to the countries and the region as a result of this cooperation and streamlining of procedures, including reducing procedure turnaround time and experience-sharing, among others, which would result in overall cutting of the regulatory costs.

Also, from technology transfer and trade perspectives, converged systems were said to have the potential to help countries streamline their approval processes, lowering transaction costs, leading to favourable arrangements for the region, the countries and the partners they were dealing with. Convergence would also build scale economies to enable countries to have higher bargaining power for technologies and products. From a risk management perspective, the bigger scale would enable the region to have a bigger voice when calling for enforcement of regulations meant to preserve the environment, e.g. as provided for under the Cartagena Protocol on Biosafety, as one proponent from one of the SNOs argued:

''For all intents and purposes, convergence of biosafety systems is about getting the best from the systems for the countries, for the region and for our technological and economic partners. It is not about giving the region unfair advantage, because at the end of the day, the region needs those same partners in the walk towards the envisaged development, and the benefits will accrue to everyone in the end. People talk about resistance to change, and this is a typical case where extra-regional forces are resisting change being motivated by the region, and our challenge is thus on how to make them see our vision in the same way as us'' [Res21 (S), Oct 2007].

A further and related dimension to the 'discomfort' among extra-regional forces was the strong feeling among some proponents of convergence that the region's commitment to working together, including the convergence agenda could be derailed by some powerful external forces who were sceptical about the region's intentions and ability to achieve them. Examples were given of supposedly negative reporting of issues before, during and after the AU summit of January 2007 regarding Africa's preparedness to take SnT seriously. It was felt that such negative perspectives, especially from 'respected' opinion shapers served as a hindrance to positive progress[79]. Stakeholders indicated, almost pleaded, that while they welcomed and expected criticism, it was also prudent at times for the efforts being made to 'at least receive some appreciation' [Pmk1 (S), Apr 2007] as a way of encouraging the continent. It was clear from this encounter that practitioners were keen to defend their programmes, with some even claiming that they spent a better part of their working time justifying and defending their programmes, further dissipating institutional resources. Why this could not be done by dedicated PR offices could not be ascertained, but the end result was that negative feelings were brought to the policy terrain, and the tension created could be felt for several months after the encounter. However, as Rothstein *et al* (2006) indicate, 'blame-avoidance behaviour at the expense of delivering core business is a well-documented organisational rationality'.

Meanwhile, the other main reason why countries desired convergence was the envisaged cooperation in dealing with challenges being faced in developing and implementing national systems. The convergence agenda was thus largely related to how a country felt weak or vulnerable on its own, triggering the desire to collaborate with others. The areas of weakness,

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[79] Ref: Pmk1 (S) v SciDev.Net

needing strengthening through cooperation, e.g. technical and regulatory capacity varied from country to country, and they depended also on a country's capacities, aspirations and targets with respect to biotechnology and biosafety. Variations also occurred within different policy communities in a given country. There were also different policy communities in each country, and multiple pressures on the convergence discourse both on, and from individual, institutional, sectoral, national, regional and international perspectives.

From the above, it was clear that the compelling factors for convergence varied from shared histories and cultural values, to the need for synergistic and strategic cooperation in technology development and the need to have a unified front as a regional economic market. Admittedly, some factors were stronger than others. As one policy maker from a supranational organization noted;

> *''Biosafety largely brings countries together or pits them against each other in the realms of trade and environmental safety. What then comes to the fore is how the two opposing forces balance each other out, bearing in mind that some countries pay more attention to one or the other set of issues'' [Pmk2 (S), Aug, 2007]*

One observation that was made was the inconsistency and the varied emphasis around the issues that were brought to the agenda table. Some fora would emphasise the shared histories agenda, while others would dwell on the culture dimension, yet others would focus on the economic and technological benefits that could accrue to the region as a result of shared policy positions. Still it was not uncommon for all these issues to be debated in one forum, the sticking point always being how to bring them all together given the existing disciplinary

boundaries, and in some cases the lack of representation in these fora from government agencies mandated to deal with those issues. The challenges encompassed both the framing and the operational dimensions, and this raised the barriers for the convergence agenda. Also, as mentioned earlier, the desire for convergence of the regulatory systems followed closely the debates in the technology itself, and the biggest forces around the issue related to the operational context for the regulations and the technology. The catch 22 for the technology and the regulations was that each was mentioned as being well placed to create opportunities for the other, and how this would unfold in reality remained to be seen.

8.3   Fears around convergence

This buoyancy about convergence was however not shared among all policy makers, with some seeing it as another policy fad that would just disappear with time. It was interesting to observe that those who were skeptical were mainly those who had been in the policy arena for a long time, who therefore probably knew what was feasible and what was not, but who may also be just fatigued, and believing that nothing will ever change. The newer players were quick to point fingers at the long-stayers, with one of them, a senior official in the ministry of science and technology in one of the countries saying;

> ''The biggest fear I have on this issue is that there are too many people who are tired, and who will never see things happening beyond what they deem feasible. These people have established themselves to such an extent that they cannot separate themselves from the issue, and any challenge to the status quo is perceived as a direct challenge to them as individuals and their wisdom. We have to start with such people if things are to change'' [Pmk4 (R), July 2007].

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It was very clear from the statement above and from the other realities observed in the region that the hopes and fears around the technology, its regulation and the convergence agenda had to look beyond the technology itself. The bigger regulatory and institutional context had a major impact on what was feasible, to what extent and the sustainability of the interventions. For example, as revealed above, the fact that part of the policy community also consisted of members who had championed the processes that were being targeted by the changes pointed to a source of internal resistance that could not be overlooked (cf. Considine, 2005:55), and also revealed the complexity of knowledge flows within policy communities.

8.3.1 National and sub-national interests

The drive towards cross-national convergence was seen to be a balancing game between national interests (including sovereignty and right to auto-interpretation of international law) and regional aspirations, as much it was a balancing game for the various sub-national interests. The process and the output that would best serve these multiple and fluctuating interests would then more than likely lead to an attainment of convergence, stakeholders argued. However, given the multiplicity and the internal as well as external location of the forces behind these interests, the attainment of convergence was admitted to be challenging, 'and might not be worth the attention and resources it was getting', according to one respondent from an NGO [Ngo5 (R), Mar 2007]. This was also the main reason, as the same respondent pointed out, why the galvanizing factors were always changing, in reality or in framing only; reflecting an elusive search for a set of factors which were appropriately framed and shared by the region to enable a sustained regional focus towards convergence. Hilgartner and Bosk (1988) in their 'arenas model' refer to the importance of promoters of

policy issues in sustaining it within the policy space in which there are other issues competing for attention. Many questions therefore arise regarding the way learning takes place, and how it can be sustained within such a dynamic policy space. From a functionalistic point of view, the three SNOs were endeavoring to level the playing field so that more predictable learning and boundary crossing could take place (cf. Stone 2000).

It also emerged that there were unfulfilled technological and regulatory expectations at sub-national and national levels, and stakeholders were keen to have these addressed before moving to the regional level (e.g. the limited successes of the RBFP, the AU Model Law on Safety in Biotechnology; among others). It was observed that in this case the fears were directed more at the context, as opposed to the organizations championing the convergence agenda. In other instances, the fears centered on the delivery capacity of the organizations championing the process. In the final analysis this duality represents the practical challenges of reconciling the various tensions around the issue. This issue could also be interpreted from a motivation perspective, e.g. using the hierarchy of needs developed by Abraham Maslow (1943) where lower level needs have to be addressed before aspirations for higher needs become more important. Learning would be inhibited in a scenario where needs are not being address sequentially.

8.3.2 International goals

The dominant presence of international regulatory and technological targets in this issue and in the wider socio-political arena was said to be compelling the regional grouping and the member states to rush towards convergence, when they would be better off achieving incremental sub-national or national goals. A lot of pressure was being put on countries as

they did not want to be seen as failing to comply with standards that other countries were adhering to, and sometimes this compromised a firm of underpinning of processes in national goals and imperatives[80]. The envisaged convergence was seen as having this potential of diverting countries' focus and resources from their own processes towards the regional desires. It was therefore argued that given the slow pace at which conclusion of international policy processes took place; the desired convergence would also slow down the rate at which national processes took place. Generally, the international goals were not only slow in concretizing, but they also fluctuated a lot as a result of the often-conflicting national and corporate forces around them. This put the goal-setting and decision-making process beyond the influence of the weak countries in the region and other parts of the developing world (cf. ECA, 2006). Countries have however tried to form international negotiation coalitions (for example during the negotiations of the CPB) to try and counter some of these challenges.

The desire for regional convergence of biosafety systems was seen by some sections of policy makers as one way of trying to institutionalize the positive lessons from the negotiations around the CPB. On the other hand, this was viewed as an external motivator, and given the lack of unanimity within the Protocol negotiation process, some opponents saw this as *'inheriting a weakness which will come back to haunt the regional convergence process'* [Ngo5 (R), Mar 2007]. They further argued that the push for convergence should not be modeled around rich versus poor, or as pitting environment and trade interests against each other as what happened in the Protocol negotiations because the region could ill-afford these divisions. The need for consensus on why convergence was desirable was highlighted, although some were quick to point out that this (consensus attainment) would mark another

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[80] This was the opinion of most respondents who have taken part in international negotiations, notably the International Treaty on Plant Genetic Resources (ITPGRC) and the Cartagena Protocol on Biosafety

complex and protracted policy struggle which would unnecessarily divert the region's focus. It was underscored that the consensus-building and the move towards the convergence should be attempted at the same time. It was also highlighted that trying to evade the different sectoral tensions (e.g. trade v environment etc) would only serve to create fallacies that would result in improper policy outputs. On the whole, it was abundantly evident that the interaction between the domestic and external forces for and against convergence seemed to have a bigger influence than what met the eye, especially when one took into view their link with the bigger macro-setting of the countries and the region.

8.3.3   Turning a blind eye to the costs

While the motivators for convergence were highlighted, an analysis of the costs of divergence seemed to be only an implied converse of the positives. Some respondents argued that as long as this un-quantified cost remained 'not so huge a deterrent', then the necessary impetus could remain weak. One respondent from a scientific research institution in Namibia was very emphatic:

> *'Sometimes it's not about what stands to be gained, but what stands to be lost ...typical a bird in hand is worth two in the bush attitude maybe ...but I think it is true that African countries have tended to be stronger in staking their claim in situations where there is much to be lost; and in this case, we need to know what it is we stand to lose by continuing to develop and implement our systems independently. Also, it's not as if there is no cooperation already. It is there as and when necessary, and maybe that's all we require'' [Res22 (R), Mar 2007].*

The same respondent indicated that countries of the region seemed to have a lot of inertia as far as 'going for gains' was concerned. Maybe it had to do with the pressures, competition and other variables at play where there was room for a gain, because the bigger and stronger countries and other players would also be clamouring to occupy that vantage point. There was divided opinion in the SADC on whether to go for gain or defend what was there. This was another level of the major emerging narratives for biosafety in particular and convergence in general in southern Africa; one school looking at *'what do we stand to gain'* and another school looking at *'what do we stand to lose'* (linked closely to level of use of the technology and development of regulatory systems) [Mtg3, Nov 2006]. All this had implications on institutional arrangements as well as human, technological and other arrangements that needed to be put in place to make convergence of systems at the cross-national level feasible. South Africa for example, was looking at being a bio-economy, and saw Sub-Saharan Africa as a market for products, while the rest of the countries did not have the same confidence and preparedness to have these visions [Res8 (R), Jul 2006]. The other countries lay at different positions in the continuum from the protection intentions to the technology exploitation objectives. Not surprisingly, South Africa was said to look more outside the region for technological and policy lessons. This clash between the protective and forward-looking approaches was a challenge for the convergence, starting from whether it was feasible or not, to the nature of the achievable convergence once the initial hurdles had been cleared. Yet it was also appreciated by most of the respondents that it would not be possible for there to be permanent and uncontested agreement on convergence, given the realities transcending the technology and the SADC region. It was therefore up to the stakeholders to find the best way of packaging their similarities in a way that galvanised rather than kept them apart.

8.3.4 Resource diversion

There were some fears based on resource diversion, for example, that once a regional technology management structure was in place, donors would prefer to put resources there at the expense of national programmes. This in many ways showed that stakeholders had no confidence in their own governments honouring their national obligations and making sure the national processes were kept going, feeding into the regional level arrangements. However, these fears of resource diversion and competition were real, and they exposed the fallacy of shared ideals around the regional cooperation. Some respondents were quick to point out the tensions that were there between national programmes and some NEPAD initiatives for example. Some donors, especially the 'big donors' preferred to channel their assistance through NEPAD for quicker spread of their visibility, among other reasons, than doing so through national programmes. Such donors therefore favoured cross-national convergence of regulatory systems. Meanwhile, apart from the attraction of financial resources, personnel, for example consultants, would also be more attracted to regional programmes than to national programmes, usually because of higher remuneration. There was the fear therefore that solving the regional level challenges could lead to escalation of the national problems, which were supposed to be the ingredients for viable regional programmes. In the final analysis, the truth of the matter was that any different policy and institutional arrangement brought with it a competition dimension because of resource and capacity constraints, and this diminished the enthusiasm towards it, as individuals and organizational actors alike felt threatened, eliciting some kind of negative feedback scenario (cf. Considine, 2005:43).

The resource diversion fear also manifested itself from the reality that as long as governments did not put resources in the regional arrangements, and waited upon donors to support them, then both the regional and national arrangements would suffer. In the end, not only would resources be diverted, but policy attention as well, with stakeholders, including governments, giving their attention where resources were.

8.3.5 Dampening innovation

Other fears were around how adoption of regional systems could curtail policy innovation in countries. Some respondents from government institutions argued that as much as there were both internal and external pressures necessitating urgency in coming up with functional systems, countries needed to go through the experience curve, in order to be able to own the policy instruments, as opposed to adopting and implementing lessons from elsewhere. This issue locks into many domains, for example sovereignty, and capacity building, where countries emphasized linking issues of biosafety at both national and regional levels to the broader national imperatives, and ensuring that capacities for related policy responses were built. This further brought out how deeply seated issues of sovereignty were. However, it was argued that on the ground sovereignty alone did not bring the needed impetus in development of programmes and processes, and there was need to balance the 'freedom to innovate' with avoiding 'reinventing the wheel'. Others argued that countries of the region ought to appreciate that they had come a long way already through the experience curve, and maybe it was high time other measures, such as the regional convergence were put in place to stimulate further innovation.

8.3.6 *Threats to established relationships*

Mention was made of the tensions between established relationships with partners outside the region (on the technology) and strength in numbers from a regional standpoint. Some countries felt they benefited more from their partnerships with technology-rich trading partners outside the region, and they felt that the region only brought strength in so far as managing technology risks was concerned, and this was by no means an unimportant component of the agenda. However, according to some respondents who chose to portray themselves as realistic[81], for developing the technology, some of the countries in the region had nothing to offer, and even the risk management dimension in some cases needed to be looked at beyond the strength-in-numbers perspective.

This was a significant tension area, and one where co-existence was needed, because it was not conceivable that existing relationships would have to end, while at the same time, having these and the new regionalism would in some cases be some kind of a 'strange bedfellows' arrangement. Pragmatic policy innovation and looking beyond narrow institutional and national interests may be needed to ensure a win-win scenario from this tension. The example of the UK-EU-US relations is a typical case in point for this tension, with the UK fully aware of the potential gains and losses of further integration into the EU given the long relationship with the US, which predates even the earliest roots of the EU[82]. However, some international crises have arisen of late, in which many have questioned the prudence of the continued close alliance with the US, when the EU seems to have come of age. This was the same scenario that some SADC countries faced, and the challenge was how to balance the positives from

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[81] Mainly laboratory scientists from one of the leading scientific and industrial research centres in the region
[82] Robert Whelan, Sept 2007 Article on UK, EU and US relations: Foreign Policy Fears: the 'special relationship' versus strength in numbers

both intra and extra-regional alliances, especially in cases where they seemed to compromise each other. This seemed to throw weight to the notion of case-by-case cooperation arrangements, although it was a fact that cross-national relations were built over time, based on trust, and this might not happen as quickly as it should in times of crises. The bigger and more complex issues around convergence were thus more daunting than a simple cursory glance could reveal.

One fallacy that countries would need to deal with, according to some respondents, was that of a permanent convergence, and one in which countries would be agreeing all the time. The differences amongst the countries in the pre-convergence era should be ample evidence that countries would always have differences. There was need to define the minimum differences that would not threaten the convergence or in whose presence the convergence would still subsist. This was a missing link, and as one respondent, a biosafety expert from the region now based in the UK pointed out:

> *''Proponents of convergence should not fool themselves that there will come a time when countries will look at themselves as having been unreasonable at some stage. Countries will always see the justification for whatever views they hold (or have held), and it is how these differences are addressed which matters. If one country is expected to make a fool of itself, then for that simple reason, they may resist even the best of ideas''* [Res19 (OR), Mar 2007]

This again lent support to the earlier assertion by most stakeholders that it was the process of obtaining convergence, as opposed to the convergence output, which was more important in

determining the feasibility of convergence. This was also in line with the convergence hypothesis, where different systems came together, with each one bringing its good attributes to the common agenda.

8.4   Concluding remarks

This chapter has illuminated the contending stakeholder views on the cross-national convergence agenda, leaving the SNOs with the daunting task of either creating a predictable environment for the cross-national learning; or ensuring effective learning even in this dynamic environment. Among the major reasons behind the different fears and motivations was the issue of resources and capacities for developing and implementing regulatory systems. The SNOs had different capacities to deal with these issues.

Meanwhile, the lack of a sustained, shared and adequately framed convergence agenda, as a result of the fluctuations within the region spawned many questions at the higher level regarding how and why countries come together to cooperate on an issue. With respect to regimes, for example, some scholars argue that governments create or join regimes in order to make their commitments credible (Hasenclever *et al*, 2000). From the empirical results presented in this section there is some truth that some countries saw a regional approach to biotechnology management as a way of bolstering the credibility of the systems they were developing and employing in their domestic settings. In other words some individuals and countries were using participation in regional processes to read and/or see their places within the biotechnology/biosafety setting (cf. Miller and Dingwall, 1997). Some countries were also advocating for convergence as a way of demonstrating their commitment to regional integration (through functional cooperation) and demonstrating their commitment to having

the technology effectively regulated. There were also images of a way of trying to promote investment in the technology, or meeting obligations or expectations of other partners with which the countries had relationships. These issues of credibility and demonstrating commitment seemed to work both ways; in that they could also be used by some countries to push against convergence as a way of showing their allegiance to the bigger forces that might be dictating to them certain positions, e.g. donors and development partners who were against biotechnology.

This chapter also showed that a government's commitment to other governments through pushing for convergence may not only be at variance with their commitment to other external partners, but to domestic actors as well. Convergence was a balancing game where the government had to deal with many issues at vertical and horizontal levels within the broader socio-economic setting, at both national and regional levels. The question that remained, however, was if convergence was about demonstrating commitment, why did governments choose to demonstrate commitment through convergence? Why not demonstrate it through other means of cooperation. This was an argument presented by some neutrals who chose to call themselves realists … pointing to the inherent fragility of the converged position, given the different and fluctuating allegiances that the governments had to deal with [e.g. Res19 (OR), Mar 2007]. They also said the overall policy decisions in this technology were not entirely in 'the hands' of the national governments in the region, making the whole agenda at the worst, 'an exercise in futility'. It was also clear that policy convergence efforts were not separate policy endeavours, but were part of wider policy processes, especially within discussions around science and technology, agriculture, environment and trade (NEPAD OST, 2007). The wider processes therefore shaped these convergence efforts, as much as the

convergence efforts shaped the processes. In addition, there was recognition that in facilitating convergence, the SNOs were dependent on other actors and thus could not be viewed as isolated change agents (cf. Stone, 2000). There was thus a significant role for agency in these processes, particularly around choices in selection of policy ideas, which was likely to result in bounded rationality in the imitation, copying or modification of policy innovations by decision makers (Rose, 1991). New institutionalism theorists highlight the impact of agency and structure in the convergence process, emphasizing the role of rules, shared interpretations, schema and meanings in the decisions by policy makers (Di Maggio and Powell, 1983). All this was very evident in this study, and it pointed to many challenges that the SNOs had to deal with in steering the convergence processes. The limited access that the SNOs had to some of the policy actors, especially those at the sub-national level, meant that in some cases their impact could not reach all key stakeholders in the policy continuum.

The constant reference to external forces when describing coercion was evident, and other researchers have found this too (e.g. Stone, 2000). On the other hand, a focus on voluntary mechanisms has been confirmed to direct analytical attention to the internal attributes and salient features of policy arenas, such as similar political ideologies, policy styles, culture, language, and institutional arrangements. This study also confirmed these trends, while also establishing that the various convergence mechanisms may not necessarily act uniformly in different polities, and that there were different sources of the policy lessons, ranging from internal to international sources. A closer look at how these different motivations influence the mechanisms through which the three SNOs facilitate spread of policy innovations across countries is made in the next chapter through the lens of the Busch and Jorgens typology. The chapter also further analyses and brings all emerging issues together, before advancing some

conclusions and recommendations on the roles played by the three SNOs in bringing about cross-national convergence of biosafety systems in the SADC.

CHAPTER 9   ANALYSIS, DISCUSSION, CONCLUSIONS AND
**   RECOMMENDATIONS**

9.0   ANALYSIS AND DISCUSSION

This research was conceived and implemented from both inductive and deductive[83] perspectives, with the three-factor typology proposed by Busch and Jorgens (2005) as the organising framework. As discussed earlier, the typology proposes harmonisation, coercive imposition and diffusion of practices as the broad categories of mechanisms through which similarity of policies and regulatory systems across countries occurs. It is one of several conceptualisations advanced by policy researchers and other scholars as presented elsewhere in this thesis. Based on the region-specific realities discussed in the preceding chapters, this concluding chapter analyses the processes towards convergence and the emerging convergence in the SADC through the lens of this model, drawing similarities, differences and practical as well theoretical lessons for cross-national convergence of biosafety systems in the region and beyond.

9.1   Looking at multiple mechanisms

This study was about how policy innovations spread across individual countries and a group of countries with the facilitation of supranational organisations. A number of researchers have demonstrated that causes of domestic policy change do not come from national sources only, but they also quickly indicate that these causes are also not limited to isolated responses to global pressures either. With respect to the former, comparative policy studies and international relations scholars have since the 1970s shown the increasing impact of international actors, international institutions and policy processes on domestic policy (e.g.

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[83] Simply put … arguing from observation (inductive reasoning) and from theory (deductive reasoning)

Gourevitch, 1978; Keohane and Milner, 1996; Yanacopulos, 2005). Domestic political processes are said to be increasingly interdependent, accounting for some share of cross-national convergence. However, as presented in Chapter 2, many researchers have followed the effect of one mechanism only, and this has been blamed for emergence of some kind of mechanism-biased analysis, resulting in the mechanisms under focus being 'found to exist and to explain scenarios' even in cases where other mechanisms would be better placed (Busch and Jorgens, 2005; Lehtonen, 2006). This research looked at multiple causal mechanisms and the facilitating factors for these mechanisms, thereby allowing for a comparative analysis of the importance of the different mechanisms within the cross-national policy arena. The mechanisms looked at, and as detailed by Busch and Jorgens (2005) were; legal harmonization through supranational law of multilateral agreements; coercive imposition through political or financial conditionality, among others; or the non-obligatory diffusion of ideas, institutions or instruments through voluntary imitation and learning. However, unlike the approach taken by Busch and Jorgens of putting a bigger emphasis on one of the mechanisms (diffusion), this study traced the existence of the three mechanisms to the same extent. Their argument for the approach they adopted rested on what they called 'less coverage' of this mechanism in the literature. If one mechanism were to be given more prominence in this study on biosafety systems in southern Africa, harmonization would have been chosen, the reason being that this represented the terminology most widely used by policy actors in the sub-region. This was avoided as the study sought to unravel broad-based empirical evidence from the region and also endeavoured to avoid falling into the trap of entrenched framings, or rhetoric in good currency (Considine 2005:89; Jordan and Haplin, 2006) some of which have been reduced to 'mere slogans'. The table below presents a summary of some of the factors inherent in the three SNOs (as revealed by the study) which

were envisaged to facilitate the operation of the different mechanisms within the research framework.

Table 7: Mechanisms and key facilitating factors for organisations[84]

Mechanism	Facilitating factors for AU	Facilitating factors for NEPAD	Facilitators for SADC
Diffusion	Existence of the Model Law on Safety in Biotechnology. Also, presence of multi-country initiatives in other sectors removed many barriers to diffusion, e.g. mistrust among actors.	On-going cross-national biotech R&D projects e.g. projects under the SANBio programme in the SADC region	Existence of technical committees, sector units and programmes of action on S&T, biotech and allied issues
Harmonisation	Emerging regulatory authority through the Pan-African Parliament (PAP)*, and enforcement of obligations through other policy domains	No regulatory authority, but harmonisation likely through creation of technological and regulatory 'interdependence' among countries	Potential through Heads of State and Council of Ministers. Efforts towards this made specifically for biosafety but not observed (ref Dec 2004 deadline for regulations set by the Heads of State)
Imposition	Political clout (however, it appears the technology has not raised the imperative to that level: also, efforts are fragmented and seem to move in response to global trends, especially around resources)	Resource endowment and expertise; resulting in countries wanting to associate with the organisation, i.e., claims for legitimacy through knowledge and expertise.	Use of power and opportunities from status as a regional economic block

* The PAP was still relatively new and grappling to situate itself within the terrain, thus being effective in technology regulation issues could take time. The organisation was also

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[84] These factors were in addition to the broader macro/regional context issues such as socio-economic and cultural similarity, and the existence of a problem pressure which all the countries were grappling with which were creating the need for convergence.

still in the process of establishing partnerships with more experienced bodies such as NEPAD and the RECs.

Harmonisation in this case was largely underpinned by technological and policy interdependence[85] and the three bodies had all made moves to illuminate or exploit the interdependence among countries. Some of these moves had been through initiation of cross-national research programmes where each country participated and contributed according to its capability and resource-endowment (for example the SANBio project under NEPAD and the SACBB under SADC). These programmes had been initiated mainly by the SADC and NEPAD, and they also increased the visibility of these two bodies in the region, in addition to cementing relations and cooperation among countries. However, on a perennial collision course with this interdependence was the existence of competition for resources, which resulted in countries according more respect to bilateral obligations with resource-rich trading partners, than having firm allegiance to a regional arrangement. This was understandable given that in most cases the bilateral relations were allowing countries to attract investment in the technology and derive other benefits from technology-rich countries or partners (cf. Stone, 2003; Ruggie, 1975).

The SNOs also seemed to be on a mission to be 'everywhere in the policy arena', a situation that brought diversionary overlaps and negative impacts on sustained interdependence among countries. For example, at Africa-level, there were questions on whether the processes mediated by the Ministers of Agriculture under the African Union [for example their endorsement of the African Seed and Biotechnology Programme in 2006] (African Union, 2006a) were converging with the activities of the High Level African Panel on

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[85] Which resulted in exchange of policy ideas, policy models and personnel in some cases

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Biotechnology and those of the Science Ministers under AMCOST. These processes were also drawing on different national stakeholders, and the potentially negative impact that these divergences had on cross-national convergence of regulatory systems and cohesion of the national systems could not be underestimated. However, with a realistic appreciation that this multiplicity may not be avoidable given the different forces in the policy field, the challenge remained how to bring lessons from the different processes together, as echoed by Karagiannis and Radaelli (2007) in their analysis of public policy making in general. The SNOs thus had an obligation to minimise this duplicity or ensure policy processes were not constrained even while this happened.

One further challenge to harmonisation was the diffuse nature of the SADC regional policy context and stakeholders, and hence multiple targets of the policy innovations (cf. Lehtonen, 2006). For example, at the cross-national level, the multiple allegiances amongst countries with respect to regional economic communities (see Chapter 5) militated against harmonisation, and the other mechanisms as countries could shift their allegiances elsewhere[86] in the event of conditions not being favourable for them in another setting (Shams, 2005). This is a phenomenon also observed in larger efforts towards regional integration on the continent (ECA, 2006), and while this was not observed during this study, the three SNOs had the potential to develop synergies among their various strengths to deal with this issue.

The key observation of the study is that while harmonisation was talked about a great deal, there were limited regulatory and institutional mechanisms and political will for

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[86] For example, Seychelles left the SADC grouping in 2004, but rejoined towards the end of 2007. The reasons for this were however not pursued by this study

operationalising it within the three supranational organisations. The 'toothlessness' of the region (as one CSO representative called it [Ngo1 (R) Jul 2006]) was evident from the lack of movement by the countries towards the deadline of December 2004 that was set by the SADC Heads of State for countries to develop their national biosafety legislation. The collective dilemma which countries were intending to deal with collectively was there, but the mechanisms for seeing it through the regional and national structures were weak or did not exist (cf. Faria, 2002).

9.1.1 Interplay between mechanisms

As could be predicted from the crosscutting influence of biosafety, there was interplay between these different mechanisms in the envisaged transnational governance framework. The mechanisms acted on different levels of the biosafety systems, and looking specifically at policies, and further splitting this into policy processes, policy outputs and policy outcomes, various impact levels could be detected. The impact was dependent to a large extent on the regional context and on the realities around the organisations with respect to their regulatory status, resource-endowment, political clout; among other dimensions (as detailed elsewhere, especially in Chapter 5). The mechanism that would have the biggest influence on the national policies also depended on the lack of regulatory influence on the part of the three SNOs, and the subservience of biotechnology issues to other policy agendas (cf. Bandelow, 2007; Lethtonen, 2006). Further, the dominance of external sources of funding and expertise also meant that the 'regulatory hand' of the three organisations and other multi-state processes on the continent was limited (cf. Genschel and Plumber, 1997 on regulatory competition and international cooperation). The fact that institutionalisms around biotechnology and biosafety were only still developing also made the organisations weaker in

terms of stamping their influence because there was still a lot of fluctuation around the organisations themselves (Karagiannis and Radaelli, 2007). This was also manifested in the many and different initiatives and the 'start-stop approach', among other dimensions.

One of the main determinants of the nature of mechanism in operation is the identity and composition of policy operatives within the given policy context (Bennett, 1991). As discussed throughout the thesis, and mainly in Chapter 7, the region was congested with different players, some being in the policy field continuously, while others entered and left the arena on a continuous basis. Most of these players included those who were part of the development of the systems now being targeted for change by the convergence agenda, and they introduced a resistance dimension to the processes (Matz and Ferenz, 2005). These operatives included elected officials, bureaucrats/civil servants and pressure groups. Policy entrepreneurs/experts also played an important role within the policy arena in the region, and these came in the form of prominent individuals, think tanks and consultants. They flagged knowledge legitimacy in their dealings, while other groups, for example elected officials brought political legitimacy, and bureaucrats/civil servants brought procedural legitimacy through their knowledge of how to assimilate and domesticate policy lessons in the national systems (cf. Stone, 2003). These different legitimacy and influence levels had a bearing on the possible mechanisms in operation for example through constraining or facilitating the knowledge that the policy actors could access and in turn be able to pass on.

9.1.2 Main mechanism in operation

Taking all the above into consideration, and focusing specifically on the regulatory capacities of the three organisations, the empirical evidence reveals that the main mechanism through

which they could influence processes in the region was through diffusion, as facilitated by learning, emulation and the epistemic influence of the three organisations. The various workshops organised by these bodies, in which different policy actors participated, the many policy documents produced and expert committees that were set up all served as opportunities for elite networking or voluntary and non-legally binding channels for spreading policy lessons across the region (cf. Stone, 2000). Largely, the adoption of lessons from these networking exercises and other processes could only be voluntary because of the lack of regulatory legitimacy on the part of the three SNOs (as discussed Chapter 5). However, further analysis also showed that in some cases the countries had no choice because of lack of capacity to initiate parallel responses to the pressures. In such cases, there was diminished voluntarism on the adoption pressures, but this emanating from the countries' own lack of preparedness (which gave them no choice) as opposed to the SNOs unilaterally coercing the countries to adopt the policy innovations (cf. Beach 2005: 71). On the other hand the claim of superior knowledge on the part of the SNOs and their programmes was also seen to be coercing countries to adopt policy innovations, and to participate in programmes in the 'fear' of not wanting to be excluded from the development pathways (see especially Chapter 8). Coercion was thus coming in the form of *'knowledge sanctions or conditionalities'* (own emphasis) unlike the political or economic conditionalities which other bodies or countries can exert, and is similar to the ideational influence referred to by Lehtonen (2006). This 'soft coercion' was very clear in some of the countries which felt they had been left behind in some NEPAD processes at the beginning because of their differences with the ideals in that organisation, but having found themselves competing with NEPAD for resources to implement similar programmes, they ended up having to compromise (Chapter 8 gives more details on this). The same coercion was also highlighted with respect to the

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regulatory systems that emerged from different processes. For example, some countries indicated that the status of their national systems never seemed to receive much recognition at regional and international levels because they had not participated in the UNEP/GEF programmes to the same level as others. Those countries which had participated seemed to receive more publicity on their programmes than others who had developed their systems through other efforts, and this attracted resources to such programmes. This way the excluded countries ended up being compelled to make every effort to meet the conditions for qualifying to receive resources from such programmes (cf. Comparative Analysis report for UNEP/GEF Projects, 2006). There were also pressures from information availability, where countries felt they would not be able to keep abreast with new knowledge being generated in some research and policy efforts if they did not participate in certain programmes. There appeared to be some closed communication loops among the different policy actors (cf. Holzinger, 2006), creating some kind of 'members only' clubs.

As mentioned earlier, the three bodies had, through their interaction with individuals and organisations in the region, promoted networking among scientists, policy makers and government officials, who in turn had acquired and transferred policy lessons to their countries. The biggest impact of this learning had been on policy output, specifically policy objectives, which in most countries recognised the potential that biotechnology could play. The policies were mainly designed to maximise the benefits and minimise the risks of the technology. Policy outcomes or impacts of the policy outputs did not seem to have been directly affected by the activities of these organisations, but by those of other transnational networks of civil society bodies, who included environmental conservationists and consumers' unions (cf. Moola and Munnik, 2007). The CSOs interacted directly with the

public, leading to different interpretation and application of the policy outputs in the different countries. This scenario confirmed what Young (2005) observes as the increasing role of CSOs as 'innovators in service provision', buttressed by their resource endowment and their 'advocacy stance with and for the poor'. On the other hand, because of their limited contact with the generality of the population and the wider policy community, the three SNOs had limited impact on the fate of the policy innovations once they got into the public domain (Stone, 2000).

Participation and representation in regional initiatives, apart from encouraging learning, also served as a way of validating national programmes, and proving national competencies at the regional level (cf. Beach, 2005: 17). There were thus nationalistic aspirations to prove competence and allegiance to the region which were compelling countries to participate in regional programmes and to support the convergence agenda. Serving in regional arrangements served to keep countries and stakeholders visible and recognised. There was pressure therefore from within countries which pushed this aspiration, and this was true for all the countries in the study region, although they had different reasons for this, based on the levels of pressure they experienced from the technology.

9.1.3   Challenges for policy diffusion in the SADC

The one challenge with diffusion of practices across countries in the SADC region that became evident was the notion of rationality, a crucial prerequisite for diffusion (Stone, 2003). There is an assumption in diffusion that shocks from within the domestic system prompt policy actors to look beyond their borders for lessons on how to deal with the shocks (Seeliger, 1996; Bennett, 1991). From a rational learning perspective, policy actors are

assumed to look at all relevant policy experiences and deploy maximum analytical capabilities to update their policy beliefs (Meseguer, 2005). However, for the SADC region, given the pressures surrounding the policy actors, and the time, financial and other resource constraints they faced, the evidence from this study has shown limited leeway among policy actors with respect to learning and the choices they had among the different options. The constraints within the system entailed that the diffusion was directed and constrained, for example, by the nature, source and amount of resources availed to learn and hone the lessons. In the final analysis, countries appeared to be coerced into adopting particular policy options, even in spite of the lessons they would have learnt from the different programmes they had been exposed to. For example, some respondents bemoaned what they called *'wasted learning'* [Res8 (R), Jul 2006] referring to their inability to transfer what they had learnt to national policies because of constraints within the context. There was reference to the fact that without resources to tap the desired lessons, interventions would always come based on who had provided resources for the activities. Therefore, it was clear again here that the complexities of the context within the SADC region were making it difficult, not only for policy makers to have much leeway in championing the policy process, but also for policy innovations to move across boundaries. Unlike in convergence studies conducted in other geographical settings where the major focus could be on the policy constraint (cf. Busch and Jorgens, 2005; Bandelow, 2006), for the SADC the bigger context always came to the fore, constraining and complicating the identity and magnitude of mechanisms that could take effect. For example factors which might facilitate the action of one mechanism in other settings would not necessarily facilitate the same within the SADC because of the intricate links between the bigger, region-specific contextual constraints and the constraints within the policy area.

As discussed in Chapter 8, policy actors also generally exhibited fatigue from discussion of biosafety issues, and this, together with the multiplicity of players in the arena, meant that some mechanisms could fail to work largely because of this diminished willingness and capacity among policy actors to absorb more lessons. There were also limited choices with respect to the processes employed or attempted towards the convergence (cf. Holzinger, 2006) because of resource constraints, which meant that in some cases the same approaches were continuously applied even when they had failed.

9.1.4   Information challenges

The study did not obtain from the respondents as much empirical data on how far the policies/systems had converged, as much as it did on the processes towards the convergence, and this was partly because of the difficulties in obtaining information from countries, in addition to the bigger focus on processes rather than outputs of the same. These difficulties also featured as a hindrance to the cross-national spread of policies, especially as it happened in some cases that some policy actors claimed to have policy documents in their countries, but were in some cases not able to produce the documents. This would have allowed further and more detailed scrutiny and comparison of the documents. At the broader level, information availability was a major challenge in the region, and some respondents confirmed that it had a negative impact on lesson-sharing among countries, resulting, among other problems, in countries remaining distant from each other instead of getting closer through sharing information. This was a void which respondents said the SNOs could fill.

The three supranational organisations also fell into the same predicament of having limited power, not only to effect convergence, but to make it lasting, and to drive it according to their own terms or the terms of the region. They did not have enough financial resources to do this. On the other hand, while they might not have resources to chart their own path, countries had latent capacity to resist programmes in which they felt they had not made a big contribution, and here again clashes with existing or envisaged bilateral arrangements came to the fore. Also, because of resources, the three efforts towards convergence by the SNOs on the continent during the study period were facing the fate of being short-lived; with the SACBB effort already having folded (and then revived but without a clear lifespan) after the termination of funding. By the time it was being revived in late 2007, following 3 years of acquiescence, significant momentum and focus had been lost, and with new members coming on board, a lot of reinvigoration was required. The AU Biosafety Project had funding for a three-year period, up to the end of 2007, and continuation of its ideals was contingent (among other issues) on countries having taken up the measures developed and assimilated them in their own systems. If the experience with the AU model law was anything to go by, then the success rate would be difficult to guarantee. On the other hand, the work of the High Level African Panel on Modern Biotechnology championed by NEPAD faced relatively higher prospects of a longer survival because of the dual approach to the technology and the regulations. The spread of the Panel's work into the continent through RECs was expected to keep the efforts visible for a while, but bearing in mind these were the same RECs grappling with other challenges already, the domestication might well prove to be a burden. A holistic approach to the cross-national programmes was needed, especially with a view to strengthening the country positions as necessary ingredients for the cross-national arrangements.

9.1.5 Summary

In the final analysis, this thesis revealed the existence and interplay between the three mechanisms proposed by Busch and Jorgens, and that the requirement for government-led and highly-centralised joint decision-making processes made harmonisation the least significant of the three mechanisms. Therefore, and as observed by other researchers, the three mechanisms were not mutually exclusive, and their effect on spread of policies depended a lot on contextual factors within organisations, sectors, countries and regional levels.

In particular, the following observations were conspicuous:

- That, countries, organisations and individuals learnt from other countries through different ways, such as looking for outside examples as part of ideational debates; when seeking solutions to practical policy and institutional questions. Efficiency and legitimacy aspirations were some of the motivations behind the learning. Meanwhile, countries also looked at other countries and the SNOs as competitors – for financial and ideational resources. Key 'policy learners' were existing domestic actors, notably government officials, civil society operatives and researchers in government and quasi-government organisations.

- That, by and large, cross-national 'learning' formed part of wider strategies to find new models of regulation to deal with pressing problems and to overcome strong opposition to change. Meanwhile, South Africa differed a lot from the other study countries over the sources from which it learnt. SA looked mainly beyond the region and beyond the continent for lessons, and this was understandable given its level of development and use

of the technology. The other countries meanwhile looked up to SA, although they did not do this willingly because of lack of reciprocity.

- That, while in some cases over-shadowed by sovereignty and other contextual issues in countries, voluntary cross-national learning played an important role in overcoming the effects of these different national settings. The learning was able to assist in overcoming the effects of diverse national settings and hence contributed to significant institutional change occurring in the systems for biosafety across the countries.

- That the three SNOs all clearly played some roles in imparting policy lessons, and facilitating cross-national policy convergence, and that there was potential for synergistic interactions among them, and this would lessen the potential for divisive impact on the limited stakeholder base in the countries and the region. The organisations had different levels of reach, mandate, influence, resource endowment, experience with regulation of the technology, among other factors, and these could be leveraged in the quest to create an effective cross-national learning environment.

Overall, with the guidance of this typology, the findings underlie the importance of using integrative frameworks if an understanding of sources and mechanisms of spread of policy innovations across boundaries is to be obtained.

9.2   CONCLUSIONS

This study confirms the complexity of the cross-national regulation agenda; and further brings out the issues behind the complexities for the biotechnology regulation endeavour. What emerges is a set of diverse and fluctuating understandings, fears and motivations for the convergence agenda; underpinned by sub-national, national, regional and extra-regional forces. These forces shape the reality of what the SNOs and the countries have to deal with in the envisaged multi-country governance structure, laying bare the realities and fallacies that face the convergence aspirations which have been on the regulatory agenda table for a long time.

The study, thus does not only confirm complexity, but informs that the complexity is underpinned by many forces that do not necessarily come to the fore if not unearthed by careful and multi-method study; as endeavoured by this research. For example, in the backdrop of a mixture of technology-inherent and technology-transcending challenges facing the policy agenda as revealed by the empirical evidence, it became clear that a purely techno-centric approach to the convergence was less likely to be successful. This called for the three organisations and other SNOs to synergise their different capacities and strengths if successful boundary crossings at the various levels are to be achieved.

With different motivations and levels of caution, countries of the SADC region appeared to be in agreement on the need for a transnational governance framework for biosafety. If the signals on this were not clear enough, what was undoubtedly clearer was that stakeholders were keener on owning the processes towards that transnational framework, before the framework itself was put in place. This resonates with what Stevens (1993) notes in an article

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on harmonization, trade and the environment … that *'for the most part, the purpose of these efforts is not so much to achieve identical regulations or standards, but to converge international methods for developing and administering standards'.* The different challenges surrounding participation in the standard-setting processes were discussed throughout this thesis.

One of these was that biotechnology or biosafety policy was a policy measure in many policy fields, such as industry, science and technology, education, environment, agriculture, trade and others, and this elevated the challenge of cross-national comparison. In addition, there were many other policy measures which were closely related to and overlapped with biosafety, for example food safety, sanitary and phytosanitary measures, environmental safety etc. Assessing similarity of biosafety at the cross-jurisdictional level had to take all this into consideration, and depending on the location of policy actors from whom responses were sought, different levels of convergence were likely to be encountered. There were also continuous changes at the bureaucratic and institutional levels in most countries which resulted in government departments emerging or disappearing frequently, and this posed both conceptual and operational challenges to the policy processes.

Issues of hype around the technology (inevitable as they were because of the quest by scientists to receive attention) added to the pressure on the technology and the regulatory processes. However, due to the newness of the technology in the region, extended timescales were also inevitable in the regulatory process, and pitting these together added to the complexity around the cross-national convergence aspirations.

One of the challenges for this research was that it entailed assessment of similarity of policies in some cases where no policy existed at some of the times for which the observation was being made. This was one reason why the research focused more on the process of getting convergence, as opposed to the convergence itself. Similarity in the policy processes and institutional responses at the different points in time could be assessed even in cases where no policy existed.

The unrelenting national and regional socio-economic and political context hampered regional aspirations. As much as countries saw the benefits of cross-country cooperation, from their own realities and from experiences elsewhere, e.g. in the OECD and the EU countries, the historical and bilateral realities of the countries in the region limited the autonomy that they had in the international policy space. Most of the countries were too committed in other arrangements which pre-dated the convergence agenda, and which were in place to prop the countries' waning economic fortunes. Extra-regional powers, in the form of individual countries or groups of countries, companies, private foundations and others had a divisive effect on the region through their resource partnerships with some countries. Meanwhile, in some countries the limited visualisation of immediate economic benefits from the convergence dampened its prospects as a long term socio-economic development target.

There was a strong perception across the entire spectrum of stakeholders who participated in the study that regional policy aspirations and processes were easily reversible. This dampened the commitment and motivation of policy actors towards the regional ideals as they had to embark on new initiatives every now and then, with a majority of the initiatives being abandoned mid-stream. A number of such initiatives were cited and detailed elsewhere

in this thesis. These changes were seen to reflect the continuous effort by the governments in the region to position themselves adequately to deal with the policy challenges in the backdrop of a national and regional policy space that was congested and contentious.

Some respondents pointed out that convergence of systems would not necessarily address the implementation challenges faced by countries and the region. Examples were cited of how difficult it was for partners to access facilities set up in other countries. Thus, in the event of countries having to share resources as part of implementing the regional system, such issues would have to be taken into consideration. As emphasised throughout the thesis, the countries were at very different levels of technological and regulatory development, affecting the impetus with which they addressed science and technology issues. This led to insecurity among some countries emanating from fears of losing revenue and job opportunities as well as fears by more fragile economies, of being dominated and marginalized by stronger ones. This again underscored the importance of the process of achieving convergence, as opposed to the result of the process. It was clear that a regional system would emerge and would be effective only if local specificities were taken into account in the development process. However, the local specificities around biosafety remained fluid and elusive because they were under bigger external and internal forces, and this further complicated the convergence agenda.

It appeared that while the technology had a modernising effect on the countries and the regulations, it did not seem to carry enough weight to overcome the broader contextual barriers in the region. There was a feeling among respondents that until the countries were in a position to make their own decisions on the technology, then the threat of the external

forces would remain strong and decisive regarding where individual countries or the region could go. Respondents also felt the effectiveness of the regional system for biosafety would always be subordinated to other issues, such as trade, politics and food security and there might be need to think about and explore a more holistic convergence agenda in these wider policy fields.

9.2.1 Multi-layered convergence

From the daunting contextual realities highlighted above and throughout the study, this thesis advances that for biosafety systems in the SADC region, achieving and implementing a cross-national framework where all countries face the same obligations would not only be difficult, but would spawn divisive tensions at other levels. For example, respondents from countries that were well advanced in the technology and the regulatory systems indicated their unwillingness to climb down to some *regional-outlook-mandated-framework*[87] which might not best serve their interests, while lagging countries indicated the increased challenge they would face in trying to maintain their obligations at domestic and regional levels. The stumbling blocks of national interests, the perceived existence of a technology hegemony and the different institutional capacities at national level were part of the context that the regional framework would have to deal with, in addition to other numerous and fluctuating realities. A **'multi-layered convergence'** therefore seems the most feasible option, where countries occupy different positions with respect to the ideal 'converged position'. Figure 13 below is one variant of several possible schematic representations of this type of convergence.

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[87] Own emphasis
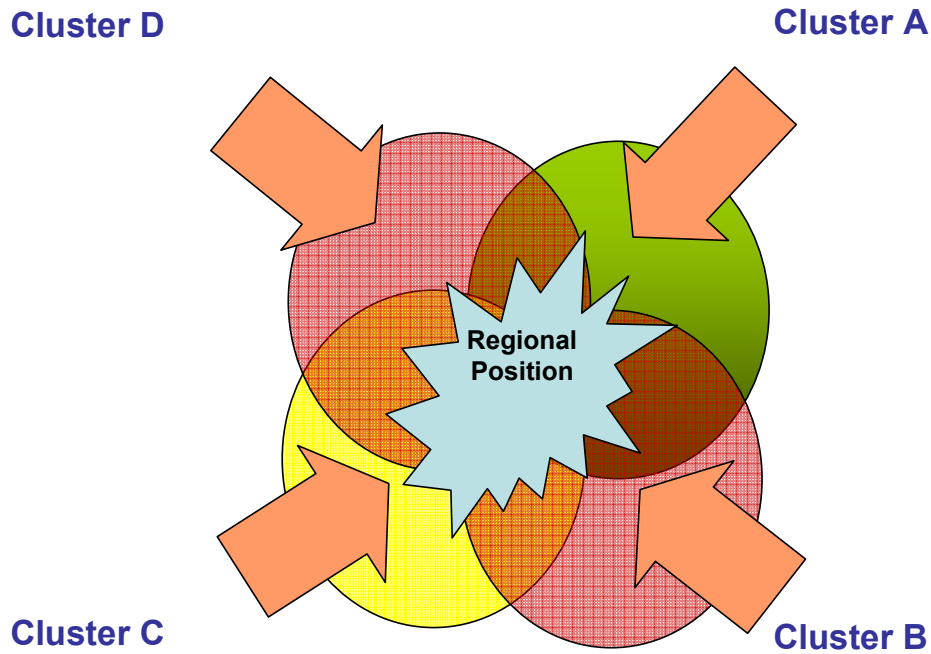
Fig 13. Schematic presentation of proposed multi-layered convergence

The layers or clusters above would group countries, for example, according to level of development and use of the technology and regulatory systems (see Table 1), and would mean different obligations on the part of the countries vis-à-vis demands from the regional position. This layering would not be without problems, however, as some countries were seen to want to collaborate or partner with those that were more advanced than them, but it would deal with fears of hegemony or domination by others, making 'cooperation from contribution' and 'owning of regulatory processes' more feasible. The different positions would also be useful as benchmarks to measure progress of different countries in the development of their systems vis-à-vis their regional partners. Meanwhile, apart from layering based on status of entire regulatory systems, the layering could also be issue-specific; for instance, following the example of EU regulations and directives on pertinent

aspects related to development and release of GMOs [e.g. labelling, product release, risk assessment and so on] (cf. Wafula and Sikoyo, 2005; Levidow *et al*, 1996). This approach would resonate with what some respondents noted as the need to focus on 'key and urgent matters' given the pressures governments face from other policy arenas.

Focusing on sub-national sectors (e.g. agriculture, environment or science and technology ministries) as convergence targets would also be another type of layering, and respondents already indicated there is greater feasibility of these converging within and among themselves, particularly at in-country level. Cross-national convergence of practices within these national sectors would be easier if the assumption of 'less heterogeneity among policy functionaries in corresponding sectors' (Meseguer, 2005) can be upheld. Facilitation of the cross-national learning by the SNOs, especially through their sector-specific programmes, could increase the feasibility of this approach.

Other researchers have proposed approaches akin to this proposed layering, all related to how centralised or diffuse the decision-making system would be; for example Paarlberg (2006) talks about the tightness or looseness of the 'harmonised systems', while Birner and Linacre (2008) analyse decentralised and centralised governance structures. This thesis focused more on the process of attaining convergence, and less on the outcomes of the process, and the reasons for this were discussed throughout the thesis. The feasibility of these various options presented here therefore is only preliminary speculation based on the interactions with policy actors and review of literature, and begs further analysis from both theoretical and empirical perspectives. In particular, governance and metagovernance

theories should bring immense explanatory power given the dominant roles of both state and non-state actors.

With respect to the processes, this section has concluded on the challenges and realities and speculated on feasible convergence outcomes. It is further contended that in the final analysis, the success of the transnational regulatory arrangement envisaged would be measured by its ability to surmount the context and have purposeful impact. This thesis presented how the efforts of the three supranational organisations, AU, NEPAD and SADC to surmount these challenges can best be described with the aid of the Busch and Jorgens typology.

9.3 RECOMMENDATIONS

Regulatory competition among countries is a key issue as countries jostle to position themselves strategically to benefit from advances in the technology. At the same time they also have to be wary of their obligations to the region. This reality does not seem to be on its way out and one opportunity could be for the region to present itself as the entity to compete with other regions, both for favourable technologies and products thereof. Development and implementation of effective policies and institutional arrangements to this effect may prove vital. These speculations however remain subject to further research.

There are contentions in literature regarding whether drivers of convergence are ideational or material forces. This research showed the existence of both forces in the SADC quest for cross-national convergence of biosafety systems, with the type and strength of each force varying in space and time. In times of crises for example, countries were more in need of material support, while in the normal course of policy development, ideational forces were more dominant. There was a general feeling that countries were more at liberty to amend ideas from elsewhere to suit their own peculiarities, than what happened when material resources were provided. This issue renders itself to further investigation because of the complexities arising from continued limited investment in policy and regulatory processes by the regional governments, which left policy makers at a quandary regarding both sources of ideas and material resources.

On the whole, further and closer analysis of the convergence that has occurred, from both practical and theoretical perspectives is required to confirm and explain some of the issues highlighted by this research. A possible approach would be to look at clusters of countries

within the SADC region or beyond, e.g. based on the level of development of their systems or use of the technology or the other 'layers' proposed in 9.2.1. Parallels for countries within the same cluster could be drawn based on predictions from the 'most-similar-systems' approach, and would also help in bringing out the national level factors which facilitate or hinder cross-national policy convergence, including whether or not biosafety is a big enough imperative to break documented sectoral tensions between environment and trade, among others. Further use of the typology proposed by Busch and Jorgens as an overarching framework would still be invaluable as this framework largely captures the dominant mechanisms within the biosafety arena in southern Africa.

10.0   REFERENCES

AfricaBio (2006). Status of Agricultural Biotechnology in the SADC countries. Paper presented by Prof D Makinde at the *AFSTA Workshop on Biotechnology Communication & Outreach.* Hilton Hotel Nairobi, Kenya, 17-18th October.

African Agricultural Technology Foundation (2006). *Towards harmonization of regulations for genetically modified organizations (GMOs) in Africa,* Discussion paper prepared for the African Panel on Biotechnology.

African Union (2006a). *An African position on genetically modified organisms in agriculture,* Conference of African Union Ministers of Agriculture, Libreville, Gabon, November 27-December 1, 2006,(http://www.africaunion.org/root/au/AUC/Departments /HRST/biosafety /conference/2007/August/GMOs_paper.doc Accessed 28 March 2008).

African Union (2006b). *African Strategy on Biosafety*, Directorate of Human Resources, Science and Technology, Addis Ababa, Ethiopia.

Arcuri, A. (2007). Compliance is a hard nut to crack in the biotech dispute. *Bridges*, vol. 6 pp 21 – 22.

Ayele, S. (2007). The Legitimation of GMO Governance in Africa, *Science and Public Policy,* vol. 34, no. 4, pp.239-249.

Bandelow, N. C. (2006). Biotechnology policy convergence in continental Europe? Political institutions, problem framing and learning, *German Policy Studies 3* No. 4, pp 587 – 594.

Beach, D. (2005). *The dynamics of European integration: why and when EU institutions matter,* Palgrave Macmillan.

Bennett, C. J. (1991). What is policy convergence and what causes it? *British Journal of Political Science,* vol. 21, no. 4, pp. 215 – 223.

Bevir, M., Rhodes, R.A.W. and Weller, P. (2003). Comparative governance: prospects and lessons, *Public Administration* vol. 81, pp.191-210.

Bierstaker, T. J. (1992). The 'Triumph' of Neoclassical Economics in the Developing World: Policy Convergence and Bases of Governance in the International Economic Order', in J. N. Rosenau & E-O Czempiel (eds.) *Governance Without Government: Order and Change in World Politics*, Great Britain: Cambridge University Press.

Birner, R. and Linacre, N. (2008). *Regional biotechnology regulations: Design options and implications for good governance,* International Food Policy Research Institute Discussion Paper 00753.

Blackie, B. K. (2000). *Agricultural biotechnology and food security in Sub-Saharan Africa – Policy and Institutional Considerations.* Background paper presented at the Conference on

Global Dimensions of Food Security: Threats, Challenges and Responses, 13 – 15 April, University College Cork, Ireland.

Borup, M., Brown, N., Konrad, K. and Van Lente, H. (2006). The sociology of expectations in science and technology, *Technology Analysis and Strategic Management,* vol., 18, nos. 3-4, pp. 285 – 298.

Botcheva L. and Martin L. L. (2001). Institutional effects on state behaviour: convergence and divergence, *International Studies Quarterly*, vol. 45, pp. 1 – 26.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development,* SAGE Publications, Thousand Oaks, London, New Delhi.

Bruce, A. and Tait, J. (2003). *Interests, Values and Biotechnological Risk*, ESRC Centre for Social and Economic Research on Innovation in Genomics, (INNOGEN), Working Paper Number 7.

Bryman, A. (2004). *Social research methods (2nd Ed),* Oxford University Press.

Büchs, M. (2003). Methodological and conceptual issues in researching the Open Method of Co-ordination, *Cross-National Research Papers*, vol. 7, no. 1, pp. 31–41.

Busch, P-O. and Jorgens, H. (2005). The international sources of policy convergence: explaining the spread of environmental policy innovations. *Journal of European Public Policy*, vol. 12, no. 5, pp. 860 – 884.

Busch, P-O, Jörgens, H, and Tews, K (2004). The Global Diffusion of Regulatory Instruments: The Making of a New International Environmental Regime, European Integration online Papers (EIoP), vol. 8, no. 21.

BTZ (2002). *Status of Biotechnology and Biosafety in the Eastern and Southern African Region*. Proceedings of the Biotechnology and Biosafety Consultation Process in Eastern and Southern Africa. Biotechnology Trust of Zimbabwe, Harare, Zimbabwe.

Callon, M. (1986). Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay. Pp. 196-233 in *Power, Action and Belief: A New Sociology of Knowledge,* edited by John Law. London: Routledge & Kegan Paul.

Carlson, C. (1999). Convening. *In The consensus building handbook: A comprehensive guide to reaching agreement, ed.* L E Susskind et al. Thousand Oaks, SA: Sage Publications.

Carr, S. (2006). *Precaution and genetically-modified crops in the EU,* Summary of a seven-country study funded by the European Commission's Research Directorate, The Open University, UK.

Chataway J., Smith J., Chartuvedi, K., Mugwagwa, J.T., Wield, D., and Hanlin, R. (2007). *Building a case for national systems of health innovation.* Backhround paper prepared for the NEPAD in advance of the AMCOST (African Ministerial Council for Science and Technology) meeting and African Union Summit, January 2007.

Chataway, J., Tait, J. and Wield, D. (2006). The governance of agro- and pharmaceutical biotechnology innovation: public policy and industrial strategy, *Technology Analysis and Strategic Management,* vol. 18, no. 2, pp. 169 – 185.

Chataway, J. (2005). Is it possible to create pro-poor agriculture-related biotechnology? *Journal of International Development*, vol. 17, pp. 597 – 610.

Chataway, J. C. (1992). *The making of biotechnology: A case study of radical innovation,* PhD Thesis, Open University.

Chetsanga, C. J. and Chigogora, J. L. (2001). *The experiences of the Regional Biosafety Focal Point (RBFP) project.* Paper presented at a regional stakeholders workshop on biotechnology and biosafety, Kadoma, Zimbabwe, July 10 – 14

Clark, N., Mugabe, J. and Smith J. (2005).*Governing agricultural biotechnology in Africa: Building public confidence and capacity for policy-making.* African Centre for Technology Studies Press, Nairobi, Kenya.

Cichowski, R. A. (2007). *The European Court and Civil Society - Litigation, Mobilization and Governance,* Cambridge University Press, UK.

Considine, M. (2005). *Making public policy.* Polity Press, Cambridge (UK) and Malden (USA).

Court, J. and Maxwell, S. (2005). Policy entrepreneurship for poverty reduction: Bridging research and policy in international development. *Journal of International Development,* vol. 17, no. 6. pp. 713 – 727.

Cox, R. (1999). *Ideas, International Policy Transfer and 'Models' of Welfare Reform,* Paper presented to the Conference on Global Trajectories, The Robert Schuman Centre, European University Institute, Florence Italy 25-26 March.

De Lombaerde, P., Pietrangeli, G. and Weeratunge, C. (2006). *Systems of indicators for monitoring regional integration processes; where do we stand?* Paper presented at the Conference on New Regionalism: Progress, Setbacks and Challenges, Washington DC, Feb 9 – 10.

De Waal, A. (2002). What's new in the 'New Partnership for Africa's Development'? *International Affairs,* vol. 78, no. 3, pp. 463 – 475.

DiMaggio, P. J. and Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organisational fields. *American Sociological Review,* vol. 48, no. 2, pp. 147 – 160.

Dimitrova, A. and Steunenberg, B. (2000). The search for convergence of national policies in the European Union: An impossible quest? *European Union Politics*, vol. 1, pp. 201 – 226

Dobbin, F., Simmons, B. and Garrett, G. (2007). The global diffusion of public policies: Social construction, coercion, competition, or learning? *Annual Review of Sociology*, vol. 33, pp 449 – 472.

Dolowitz, D. P. and Marsh, D. (2000). Learning from abroad: the role of policy transfer in contemporary policy-making. *Governance: An International Journal of Policy and Administration,* vol. 13, no. 1, pp. 5 – 24.

Drezner, D.W. (2001). Globalisation and policy convergence. *The International Studies Review,* vol. 3, no. 1, pp. 53 – 78.

Drezner, D. W. (2004). *Globalisation, coercion and competition: the different pathways to policy convergence.* Paper prepared for the 2004 International Studies Association annual meeting, Montreal, Canada.

Dobbin, F., Simmons, B. and Garrett, G. (2007). The global diffusion of public policies: social construction, coercion, competition, or learning? *Annual Review of Sociology,* vol. 33, pp. 449 – 472.

Economic Commission for Africa (2006). *Assessing regional integration in Africa II: Rationalising Regional Economic Communities.* United Nations Economic Commission for Africa and African Union.

Ellison, B.A. (1998). Intergovernmental relations and the Advocacy Coalition Framework: The operation of federalism in Denver water politics, *Publius*, vol. 28, no. 4, pp 35 – 54.

Evans, M. and Davies, J. (1999). Understanding Policy Transfer: A Multi-level, Multi-disciplinary perspective, *Public Administration*, vol. 77, no 2, pp. 361 – 385.

Evans, M. (2006). At the interface between theory and practice – policy transfer and lesson drawing, *Public Administration,* vol. 84, no.2, pp. 479 – 489.

FANRPAN (2004). *Addressing agricultural biotechnology policy issues to improve food security in the SADC.* A Policy Brief of the Food, Agriculture and Natural Resources Policy Analysis Network.

Faria, J.A.E. (2002). *Legal harmonisation through model laws: the experience of the United Nations Commission on International Trade Law (UNCITRAL).* Working Group on Electronic Commerce.

Fife, W. (2005). *Doing field work: Ethnographic methods for research in developing countries and beyond,* Palgrave, Macmillan.

Finnemore, M. (1996). *National Interests in International Society*, Ithaca: Cornell University Press.

Flyvberg, B. (2004). Five misunderstandings about case-study research, in Clive Seal, Giampietro Gobo, Jaber F Gubrium and David Siverman, eds., *Qualitative Research Practice*. London and Thousand Oaks, CA: Sage pp 420 – 434.

Franzese, R. J. Jr and Mosher, J. M. (2002). Comparative institutional and policy advantage: the scope for divergence within the European Economic Integration, *European Union Politics,* vol 3, no. 2, pp. 177 – 203.

Freeman, R. and Tester, S. (1996). *Social Policy Diffusion*, paper presented to the Conference on Policy Transfer, University of Birmingham, October.

Freeman, R. (1999). *Policy transfer in the health sector*, a working paper (http://www.pol.ed.ac.uk/research/working_paper1.html) accessed 10 May 2008.

Gauthier, A. H. (2002). Family policies in industrialised countries: is there convergence? *Population-E 2002*, vol. 57, no. 3, pp. 447 – 474.

Genschel, P. and Plumper, T. (1997). Regulatory competition and international cooperation, *Journal of European Public Policy,* vol. 4, no. 4, pp. 626 – 642.

Gertler, M.S. (2001). Best practice? Geography, learning and the institutional limits to strong convergence. *Journal of Economic Geography*, vol. 1, pp. 5 – 26.

Gourevitch, P. (1978). The Second Image Reversed: International Sources of Domestic Politics, *International Organization*, vol. 32, no. 4, pp. 881 - 912.

Government of Zimbabwe (2006). National Biotechnology Policy.

Haas, P.M. (2004). When does power listen to truth? A constructivist approach to the policy process, *Journal of European Public Policy,* vol. 11, no. 4. pp. 569 – 592.

Haas, P. M. (1992). Introduction: epistemic communities and international policy coordination, *Interrnational Organisation*, vol. 46, no. 1, pp. 1 – 35.

Hajer, M.A.(1995). *The politics of ecological discourse: ecological modernization and the policy process*. Oxford University Press.

Hall, A., Bockett, G., Taylor, S., Sivamohan, M.V.K. and Clark, N. (2001). Why research partnerships really matter: innovation theory, institutional arrangements and implications for developing new technology for the poor. *World Development* vol. 29, no. 5, pp. 783 – 797.

Harsh, M. (2008). *Living technology and development: Agricultural biotechnology and civil society in Kenya,* PhD Thesis, University of Edinburgh.
Hartcourt, A. and Radaelli, C. (1999). Limits to EU technocratic regulation? *European Journal of Political Research,* vol. 35, pp. 107 – 122.

Hasenclever, A., Mayer, P. and Rittberger, V. (2000). Integrating theories of international regimes. *Review of International Studies*, vol. 26, pp. 3 – 33.

Heichel, S., Pape, J. and Sommerer, T. (2005). Is there convergence in convergence research? An overview of empirical studies on policy convergence. *Journal of European Public Policy*, vol. 12, no. 5, pp. 817 – 840.

Hilgartner, S. and Bosk, C. L. (1988). The rise and fall of social problems: A public arenas model, *American Journal of Sociology,* vol. 94, no. 1, pp. 53 – 78.

Holzinger, K., Knill, C. and Sommerer, T. (2006). *The impact of international institutions on trade and environmental policy convergence,* Centre for Globalisation and Governance Preprint Number 3, University of Hamburg.

Holzinger, K. (2006). Methodological pitfalls of convergence analysis, *European Union Politics,* vol. 7, no.2, pp. 271 – 287.

Holzinger, K. and Knill, C. (2005a). Causes and conditions of cross-national policy convergence. *Journal of European Public Policy*, vol. 12, no. 5, pp. 775 – 796.

Holzinger, K. and Knill, C. (2005b). Competition, Cooperation and Communication: A Theoretical Analysis of Different Sources of Environmental Policy Convergence and Their Interaction, *Political Science Series 102*, Institute for Advanced Studies, Vienna, Austria.

Ikenbery, G. J. (1990). The international spread of privatisation policies; inducements, learning and 'policy-bandwagonning', in E Suleiman and and J. Waterbury (eds), *The Political Economy of Public Sector Reform and Privatisation.* Boulder, Westview Press.

Ilorah, R. (2004). *NEPAD: The need and obstacles.* Paper prepared for the African Development Bank.

Irwin, A. (2001). Constructing the scientific citizen: Science and democracy in the biosciences. *Public Understanding of Science,* vol. 10, no. 1, pp. 1 – 18.

Jaffe, G. (2006). *Comparative analysis of the national biosafety systems in East Africa.* IFPRI Environment and Production Technology Division discussion paper, January.

James, O. and Lodge, M. (2003). The limitations of 'policy transfer' and 'lesson drawing' for public research. *Political Studies Review,* vol. 1, pp. 179 – 193.

Jasanoff, S. S. (2005). *Designs on nature: Science and Democracy in Europe and the United States.* Princeton, NJ: Princeton University Press.

Jasanoff, S. S. (1987). Contested boundaries in policy-relevant science. *Social Studies of Science,* vol. 17, no. 2, pp. 195 – 230.

Jordan, A. (2005). Policy convergence: a passing fad or a new integrating focus in European Union studies. *Journal of European Public Policy,* vol. 12, no. 5, pp. 944 – 953.

Jordan, G. and Halpin, D. (2006). The political costs of policy coherence: Constructing a rural policy for Scotland, *Journal of Public Policy,* vol. 26, no. 1, pp. 21-41.

Juma, C. and Serageldin, I. (Lead Authors) (2007). *Freedom to Innovate: Biotechnology in Africa's Development,* A report of the High-Level African Panel on Modern Biotechnology. African Union (AU) and New Partnership for Africa's Development (NEPAD). Addis Ababa and Pretoria."

Kabay, M.E. (2003). Computer-Aided Thematic Analysis: Useful Technique for Analyzing Non-Quantitative Data, *Ubiquity,* vol. 4, no. 24, pp. 1- 6.

Kalibwani, F., Mugwagwa, J.T. and Cohen, J. (2004). *Governing biotechnology in Africa: Towards consensus on key issues in biosafety.* Paper prepared for and presented at the IFPRI-NEPAD-FANRPAN Meeting in Harare, Zimbabwe, September 20&21.

Karagiannis, Y. and Radaelli, C. M. (2007). Policy making. *Comparative Politics*, Oxford University Press.

Keating, M. (2005). *The government of Scotland: Public policymaking after devolution*, Edinburgh, Edinburgh Unversity Press.

Keck, M. and Sikkink, K. (1998). Transnational Advocacy Networks in International Politics, in Keck and Sikkink, *Activists Beyond Borders: Advocacy Networks in International Politics*, Ithaca and London: Cornell University Press, pp.1-38.

Keely, J. and Scoones, I. (2003). *Contexts for regulation: GMOs in Zimbabwe,* IDS Working Paper 190, University of Sussex, UK.

Kelemu, S., Mahuku, G., Fregene, M., Pachico, D., Johnson, N., Calver, L., Rao, I., Buruchara, R., Amede, T., Kimani, P., Kirkby, R., Kaaria, S. and Ampofo,.K (2003). Harmonization the agricultural biotechnology debate for the benefit of African farmers. *African Journal of Biotechnology*, vol. 2, no 11, pp. 394 – 416.

Keohane, R.O. and Milner, H. (1996), Internationalization and Domestic Politics, in Keohane and Milner (eds.), Internationalization and Domestic Politics, New York: Cambridge University Press, pp. 3-24.

Keohane, R. O. (1988). International institutions: two approaches. *International Studies Quarterly,* vol. 32, no. 4, pp. 379 – 396.

Kern, K., Kissling-Näf, I., Landmann, U. and Mauch, C. (2001). *Policy Convergence and Policy Diffusion by Governmental and Non-Governmental Institutions - An International Comparison of Eco-labeling Systems.* Working Paper FS II 01-305, Social Science Research Centre, Berlin.

Kerr, C. (1983). *The future of industrial societies: convergence or continuing diversity?* Cambridge MA: Havard University Press.

Kinderlerer, J. and Adcock, M. (2005). Agricultural biotechnology, politics, ethics and policy; in *Biotechnology, Agriculture and Food Security in Southern Africa*; ed. Omamo, SW and von Grebmer, K (2005), IFPRI and FANRPAN, Washington and Harare.

Klein, J.T. (2004). Interdisciplinarity and complexity: An evolving relationship, *E:CO*, vol. 6 nos.1/2), pp. 2 – 10.

Klein, J. T. and Newell, W. (1997). Advancing Interdisciplinary Studies, in J. Gaff and J. Ratcliff (eds.), *Handbook of the undergraduate curriculum: A comprehensive guide to purposes, structures, practices, and changes*, San Francisco: Jossey-Bass, pp. 393-415.

Knill, C. (2005). Introduction: cross-national policy convergence: concepts, approaches and explanatory factors. *Journal of European Public Policy*, vol. 12, no 5, pp. 764 – 774.

Kooiman, J. 1993. *Modern Governance. New Government-Society Interactions*. London: Sage.

Larmour, P. (2001). *Coercive Transfer? Conditionality and Policy Reform in PNG and the South Pacific,* unpublished paper. Australian National University.

Lehtonen, M. (2006). *OECD Benchmarking in enhancing policy convergence: harmonisation, imposition and diffusion through the Environmental Performance Reviews,*. Science and Technology Policy Research, University of Sussex.

Lenschow, A., Liefferink, D. and Veenman, S. (2005). When the birds sing. A framework for analysing domestic factors behind policy convergence. *Journal of European Public Policy*, vol.12, no. 5, pp. 797 – 816.

Levidow, L., Carr, S. and Wield, D. (2005). European Union regulation of agri-biotechnology: precautionary links between science, expertise and policy, *Science and Public Policy*, vol. 32, no. 4, pp. 261 – 276.

Levidow, L., Carr, S. and Wield, D. (1999). Regulating biotechnological risk, straining Britain's consultative style, *Journal of Risk Research* vol. 2, no. 4, pp. 307 – 324.

Levidow, L., Carr, S., von Schomberg, R. and Wield, D. (1996). Regulating agricultural biotechnology in Europe: harmonisation difficulties, opportunities and dilemmas, *Science and Public Policy*, vol. 23, no. 2, pp.133 – 200.

Levy, D. A. (1997). Regulating digital broadcasting in Europe: The limits of policy convergence, *Western Union Politics*, vol. 20, no. 4, pp. 24 – 32.

Liefferink, D. and Jordan A. (2002*). An 'Ever Closer Union' of National Policy? The Convergence of National Environmental Policy in the European Union,* Queen's Papers on Europeanisation, No 10/2002.

Lyall, C. and Tait, J. (2005). *New modes of governance: Developing an integrated policy approach to science, technology, risk and the environment,* Ashgate.

Mackenzie, R., Burhenne-Guilmin, F., La Viña, A.G.M. and Werksman, J.D., in cooperation with Ascencio, Alfonso, Kinderlerer, Julian, Kummer, Katharina and Tapper, Richard (2003). *An Explanatory Guide to theCartagena Protocol on Biosafety*. IUCN, Gland, Switzerland and Cambridge, UK, pp. xvi - 295.

Mafa, A. (2004). *Managing biotechnology in Zimbabwe*; paper presented at a national stakeholders' workshop to present the Draft National Biotechnology Policy and National Biotechnology Management Authority Bill, Sheraton Hotel, Harare, December 9 – 10.

Matz, D. and Ferenz, M. (2005). Consensus building processes in society and genetically modified organisms: the concept and practice of multistakeholder processes: in *Biotechnology, Agriculture and Food Security in Southern Africa*; ed. Omamo, S.W. and von Grebmer, K. (2005), IFPRI and FANRPAN, Washington and Harare.

Marsh, D. and Smith, M. (2000). Understanding policy networks: towards a dialectical approach, *Political Studies* vol. 48, pp. 4 – 21.

Martin, B. and Richards, E. (1995). Scientific knowledge, controversy, and public decision making, *In Handbook of Science and Technology Studies*, eds. S. Jasanoff, G., Markle, J. Petersen and T. Pinch, Sage, London.

MCGaughey, S. L. and De Cieri, H. (1999). Reassessment of convergence and divergence dynamics: implications for international HRM, *The International Journal of Human Resource Management,* vol.10, no.2, pp. 235 – 250.

Meseguer, C. (2005). *Rational learning and bounded learning in the diffusion of policy innovations,* Working Paper No. 316, Centre for Advanced Studies in the Social Sciences, Juan March Institute, Madrid, Spain.

Miller, G. and Dingwall, R. (eds.) (1997) *Context and method in qualitative research,* SAGE Publications, London, Thousand Oaks, New Delhi.

Mintrom, M. (1997) 'Policy Entrepreneurs and the Diffusion of Innovations', *American Journal of Political Science*, vol. 41, no. 3, pp 738 - 770.

Mkwezalamba, M. M. and Chinyama, E. L. (2007). Implementation of Africa's integration and development agenda: challenges and prospects. *Africa Integration Review,* vol.1, no. 1, pp. 33 – 40.

Mnyulwa, D. and Mugwagwa J.T. (2005). Agricultural biotechnology in southern Africa: a regional synthesis; in *Biotechnology, Agriculture and Food Security in Southern Africa*; ed Omamo, S.W. and von Grebmer, K. (2005), IFPRI and FANRPAN, Washington and Harare.

Moola, S. and Munnik, V. (2007). *GMOs in Africa: food and agriculture*, Status report 2007, African Centre for Biosafety.

Mugabe, J. (2001). *Biotechnology and sustainable development in Africa: Towards regional consensus and common strategy,* Paper prepared for the African Ministerial Conference on Science and Technology.

Mugabe, J. (2002). *Biotechnology in Sub-Saharan Africa: Towards a Policy Research Agenda*, ATPS Special Series Paper No. 3.

Mugabe, J. (2003). *Centres of excellence in science and technology for Africa's sustainable development: Towards new forms of regional and sub-regional networks*, Paper prepared for the AMCOST.

Mulenga, D. K. (2006). *Status of the National Biosafety Framework in Zambia,* Paper presented at a workshop on the role of Biosafety Committees in the Implementation of the Biosafety Frameworks, Pretoria, South Africa, 23 - 26 October 2006.

Murphy, J. and Levidow, L. (2006). *Governing the transatlantic conflict over agricultural biotechnology: contending coalitions, trade liberalization and standard-setting*. London: Routledge.

Murphy, J. and Yanacopulos, H. (2005). Understanding governance and networks: EU-US interactions and the regulation of genetically modified organisms, *Geoforum,* vol. 36, pp. 593 – 606.

Naluwairo, R. (2004). *National biosafety policies in Sub-Saharan Africa: Key drivers and outstanding issues for action*; paper presented at a national stakeholders' workshop to present the Draft Zimbabwe National Biotechnology Policy and National Biotechnology Management Authority Bill, Sheraton Hotel, Harare, December 9 – 10.

NEPAD (2006). Africa's Science and Technology Consolidated Plan of Action
http://www.nepadst.org/doclibrary/pdfs/ast_cpa_2007.pdf (accessed 26 July 2006).

NEPAD and IFPRI (2004). *African Policy Dialogues on Biotechnology*. Report of First
Steering Committee Meeting, Johannesburg, May 2004.

New Partnership for Africa's Development (2001). Framework Document,
http://www.nepad.org/2005/files/documents/inbrief.pdf (accessed 14 April 2006).
Newell, P. (2003). *Domesticating global policy on GMOs: comparing India and China*. IDS
Working Paper 206, University of Sussex, UK.

Newmark, A. J. (2002). *An integrated approach to policy transfer and diffusion*. The Review
of Policy Research, Summer 2002, vol.19, no. 2, pp.151 – 178.

Odame, H., Kameri-Mbote, P. and Wafula, D. (2003). *Governing modern agricultural
biotechnology in Kenya: implications for food security*. IDS Working Paper 1999, University
of Sussex, UK.

Ohmae, K. (1995). *The end of the nation state: The rise of regional economies*, Simon and
Schuster Inc, New York, London, Toronto, Sydney, Singapore.

Omamo, S.W. and von Grebmer, K. (eds). *Biotechnology , Agriculture and Food Security in
Southern Africa,* Washington DC and Harare: IFPRI and FANRPAN, 2005.

Paalberg, R., Wafula, D., Minde, I. and Wakhungu, J. W. (2006). *Food Aid Import Policies
in the COMESA/ASARECA Region: The Costs and Benefits of Current Policy Options*,
African Centre for Technology Studies (ACTS) Press, Nairobi, Kenya.

Paarlberg, R. (2006). *Toward a regional policy on GMO crops among COMESA/ASARECA
countries,* RABESA Regional Workshop Policy Options Paper,
ACTS/COMESA/ASARECA/PBS/USAID

Paarlberg, R. (2000). Governing the GM Crop revolution: Policy choices for developing
countries. *Food, Agriculture and the Environment Discussion Paper,* vol. 33, pp.1 – 44.

Panos Report (2005). *The GM debate – Who decides?An analysis of decision-making about
genetically modified crops in developing countries,* Report No. 49, Panos, London.

Papaioannou, T., Rush, H. and Bessant, J. (2006). Benchmarking as a policy-making tool:
from the private to the public sector, *Science and Public Policy* vol. 33, no. 2, pp. 1 – 12.

Peters, G. B. (2000). *Institutional Theory: Problems and Prospects*, Political Science Series,
Institute for Advanced Studies, Vienna, Austria.

Peterson, J. (2003). *Policy networks*, Political Science Series, Institute for Advanced Studies,
Vienna, Austria.

Power, M. (2004). *The risk management of everything. Rethinking the politics of uncertainty,* London: DEMOS

Pralle, S.B. (2003). Venue Shopping, Political Strategy, and Policy Change: The Internationalization of Canadian Forest Advocacy, *Journal of Public Policy* vol. 23, no.3, pp. 233-260.

Puplampu, K.P. and Essegbey, G.O. (2004). Agricultural biotechnology and research in Ghana: institutional capacities and policy options. *Perspectives on Global Development and Technology,* vol. 3, no. 3, pp. 271 – 290.

Radaelli, C. M. (2000). Policy transfer in the European Union: institutional isomorphism as a source of legitimacy. *Governance*: An International Journal of Policy and Administration, vol. 13, no.1, pp. 25 – 43.

RAEIN-Africa (2005). Report on the First Biosafety and Environment Programme Partners' Meeting Held at Cresta Golf View Hotel, Lusaka, Zambia, March 13 – 16 (http://www.raein-africa.org/pdf/First%20BEP%20Partners'%20meeting%20Zambia.pdf accessed 15 December 2005).

Renn, O. (1995). Style of using scientific expertise: a comparative framework, *Science and Public Policy* vol. 22, no. 3, pp. 147-156.

Rhodes, R. A. W. (1997). 'Foreword', in Walter J. M. Kickert, Erik-Hans Klijn & Joop F. M. Koppenjan (eds) *Managing Complex Networks: Strategies for the Public Sector*, London, Sage.

Rose, R. (1991). What is lesson drawing? *Journal of Public Policy,* vol.11, pp. 3 – 30.

Roth, W-M. (2001). 'Enculturation': acquisition of conceptual blind spots and epistemological prejudices, *British Educational Research Journal,* vol. 27, no.1, pp. 5 – 27.

Rothstein, H., Huber, M. and Gaskell, G. (2006). A theory of risk colonisation: the spiralling regulatory logics of societal and institutional risks, *Economy and Society,* vol. 35, no.1, pp. 91 – 112.

Rothstein H (2002). *Neglected risk regulation: the institutional attenuation phenomenon.* Paper published by the Centre for Analysis of Risk and Regulation, London School of Economics and Political Science.

Ruggie, J.G. (1975). International responses to technology: concepts and tends. *International Organisation,* vol. 29, no. 3, pp. 557 – 583.

Russell, A. and Vogler, J. (eds) (2000). *The international politics of biotechnology: investigating global futures,* Manchester University Press.

SADC (2004). *Regional Consultation on GMOs.* Concept note for a workshop held in Johannesburg, South Africa, 29-31 January 2004.

SADC (2003). *SADC Guidelines on GMOs, Biotechnology and Biosafety*. Southern African Development Community Advisory Committee on Biotechnology and Biosafety; http://www.scidev.net/en/news/southern-african-nations-adopt-common-gm-strategy.html (accessed 10 March 2006).

SADC Review 2001. Poverty reduction: A top priority in SADC. www.sadcreview.com/sadc (accessed 10 March 2006).

Sampson III, M. W. (1982). Some necessary conditions for international policy coordination. *The Journal of Conflict Resolution*, vol. 26, no. 2, pp. 359 – 384.

Sartori, G. (1991). Comparing and miscomparing. *Journal of Theoretical Politics,* vol. 3, no. 3, pp. 243 – 257.

Sayer, A. (1992). *Method in Social Science: A Realist Approach*, 2nd Edition. Routledge, London and New York.

Schattschneider E.E. (1960). *The Semisovereign People.* New York. Holt, Reinhadt and Winston.

Schenider, A. and Ingram, H. (1988). Systematically pinching ideas: a comparative approach to policy design, *Journal of Public Policy*, vol. 8, no.1, pp. 61 – 80, Cambridge University Press.

Schmidtchen, D. (1999). *To Help or not to Help: The Samaritan's Dilemma Revisited*, Centre for the Study of Law and Economics Discussion Paper 9909.

Schram, S. F. and Beer, S. H. (1999). *Welfare Reform: A Race to the Bottom?* Woodrow Wilson Centre Press, USA.

Scoones, I. (2005). *Contentious politics, contentious knowledges: mobilising against GM crops in India, South Africa and Brazil.* IDS Working Paper 256, University of Sussex, UK.

Scoones, I. (2002). *Science, policy and regulation: challenges for agricultural biotechnology in developing countries*. IDS Working Paper 147, University of Sussex, UK.

Scott, J. (2004). *European regulation of GMOs: thinking about 'judicial review' in the WTO*. A Jean Monnet Program Working Paper 04/04.

Seeliger, R. (1996). Conceptualising and researching policy convergence. *Political Studies Journal*, vol. 24, no. 2, pp. 287 – 306.

Shaffer, G.C. and Pollack, M.A. (2004). *Regulating between national fears and global disciplines: agricultural biotechnology in the EU.* A Jean Monnet Programme Working Paper 10/04.

248

Shams, R. (2005). *The drive to economic integration in Africa*. Hamburg Institute of International Relations Discussion Paper 316.

Silverman, D. (2005). *Doing qualitative research: A practical handbook*, 2nd ed, SAGE Publications, London, Thousand Oaks, New Delhi.

Smith, J. R. (2004). *Diversity, Innovation and Poverty: Governance and Management of Scientific Centres of Excellence in Africa,* INNOGEN Working Paper No. 8, February.

Somsen, H. (2007) (ed). *The regulatory challenge of biotechnology: Human genetics, food and patents.* Biotechnology Regulation Series, Edward Elgar Publishing.

Stevens, C. (1993). Harmonisation, trade and the environment. *International Environmental Affairs,* vol. 5, no. 1: pp 42 – 49.

Stoker, G. 1998. Governance as theory: five propositions. *International Social Science Journal,* vol. 50: pp17-28.

Stone, D. (2003). *Transnational transfer agents and global networks in the 'internationalisation' of policy*, Paper prepared for the 'Internationalisation and Policy Transfer' Workshop, Tulane University, New Orleans, April 11 to 12.

Stone, D. (2000). *Learning Lessons, Policy Transfer and the International Diffusion of Policy Ideas,* Centre for the Study of Globalisation and Regionalisation, Working Paper No 69/01, The University of Warwick.

Stone, D. (1999). Learning lessons and transferring policy across time, space and disciplines. *Politics,* vol. 19, no 1, pp. 51 – 59.

Taylor, M. (2006). Bridging research and policy: A UK perspective, *Journal of International Development,* vol.17, no. 6, pp. 747 – 751.

Thomas, A. (2000). Development as practice in a liberal capitalist world, *Journal of International Development,* vol. 12, pp. 773 – 787.

Tinbergen, J. (1961). Do communist and free economies show a converging pattern? *Soviet Studies*, vol. 12, no. 4, pp. 333 – 341.

Tumushabe, G. (2005). *Transboundary regulation of genetically modified products in Africa; trends, experiences and emerging issues,* Background issues paper prepared for the Science and Technology Forum of NEPAD and the Development Bank of Southern Africa Ltd.

UNEP-GEF Biosafety Unit Report (2006). A comparative analysis of experiences and lessons from the UNEP-GEF Biosafety Projects. United Nations Environment Programme/Global Environment Facility, http://www.unep.org/biosafety/Documents/UNEPGEFBiosafety_comp_analysis.Dec2006.pdf, (accessed 23 February 2008).

United Nations Environment Programme www.unep.ch.biosafety (accessed regularly throughout the research period).

Ushewokunze-Obatolu, U. (2005). Biosafety policy: *in Biotechnology, Agriculture and Food Security in Southern Africa*; eds. Omamo, SW and von Grebmer, K (2005). IFPRI and FANRPAN, Washington and Harare.

Verdier, D. and Breen, R. (2001). Europeanisation and globalisation: Politics against markets in the European Union, *Comparative Political Studies,* vol. 34, no.1, pp. 227 262.

Walters, R. (2005). Criminology and Genetically Modified Food, *The British Journal of Criminology, vol.* 44, no. 2, pp. 151-167.

Wafula, D. and Sikoyo, G.M. (2005). *Trends in modern biotechnology and biosafety: Implications on trade for the ASARECA and COMESA countries*, ACTS Press.

Weibust, I. (2005). A (Slow) Burning Issue: Convergence in National Regulation of Dioxins from Incineration, *Policy and Society,* vol. 24, no. 2, pp. 46 – 73.

White, N.D. (1996). *The law of international organisations.* Melland Schill Studies in International Law. Manchester University Press.

Wield, D., Bromley, S. and Levidow, L. (2004). *Trading up environmental standards,* final report to ESRC, http://technology.open.ac.uk/cts/tup/index.htm. (accessed 15 June 2007)

Williams, R. and Edge, D. (1996). The social shaping of technology, *Research Policy*, vol. 25, pp. 856-899

Wilson, G. (2007). Knowledge, innovation and re-inventing technical assistance for development, *Progress in Development Studies*, 7, 3, pp. 183-99.

Worcester, R., Lagos, M. and Basañez, M. (2000). *Problems and progress in cross-national studies: lessons learned the hard way,* WAPOR/AAPOR, Portland, Ore., USA.

Wynne, B. (2002). Risk and environment as legitimatory discourses of technology: Reflexivity inside out? *Current Sociology,* vol. 50, no. 3, pp. 459 – 477.

Yanacopulos, H. (2005). Patterns of governance: the rise of transnational coalitions of NGOs, *Global Society,* vol. 19, no. 3, July, Routledge.

Yin, R. K. (1994). *Case study method: Design and Methods*, 2nd Ed. Applied Social Research Methods Series, vol. 5. Sage Publications, London.

Young, J. (2005). Research, policy and practice: Why developing countries are different, *Journal of International Development,* vol.17, no.6, pp. 727 – 735.

Towards cross-national convergence of biosafety regulatory systems in the SADC region: a comparative analysis of the roles of three supra-national organisations

Research question:

Whether, how and to what extent have the three supranational bodies (SADC, NEPAD and AU) contributed to cross-national convergence of biosafety regulatory systems in the SADC region?

INTERVIEW CHECKLIST

_____

Section 1 (all stakeholders)

Date of interview:

Name of interviewee:

Name and contact details of institution:

Level of institution's operations: Global [ ], Continental [ ], Sub-continental [ ], National [ ], Subnational [ ], Other (specify)

Category of institution's activities: Policy Research/Advice[ ], Technology Research [ ], Policy Implementation [ ], Technology Advocacy [ ], Other (specify)

Level of focus on biosafety issues (terms based on resources and time)

Main partners for institution (names, and then these will be categorized later)

Section 2 (all stakeholders)

Legitimacy and mandates issues

What is the mission and mandate of the organization?

What approaches and mechanisms are used to discharge this mission? Are there formal linkages with stakeholders?

How does the organization desire to be viewed by its stakeholders? (Check stakeholder's views on this)

What is the source of legitimacy for the organisation e.g. technical/policy competence, being stakeholder-driven, mandated by governments, addressing relevant issues etc?

How does the organisation view other stakeholders/institutions working on biosafety issues (investigating synergies, territoriality, conflict etc)?

_____

Section 3 (all stakeholders)

Views on convergence of biosafety systems

Does the organisation have any experience with cross-national convergence of regulatory systems? Which areas?

What is the organisation's standing/position on harmonised/converged biosafety systems; positive, indifferent, negative?

Trace the evolution of this position over the study period (probing on motivating or compelling factors for the position)

Is there any progress being made towards convergence of biosafety systems? Why?

In the respondent's (or organisation's view) how is the process towards convergence taking place (checking on stakeholders involved [esp. SADC, NEPAD, AU], processes involved, etc)?

What are the main strengths, challenges, opportunities and threats in the current process? [Look at issues such as the EU/US divide, multiplicity of policy models, human capacity issues, missing links, the research-policy nexus, other external and local/national level factors/pressures etc – relate to the three supranational bodies]

Is convergence an achievable mission? What should be done differently to realise this? What are the trade-offs, and the alternatives?

_____

Section 4 (all stakeholders)

Table 3: Capturing stakeholder opinions on mechanisms in operation (look at spatial and temporal dimensions)

Stakeholder categories		MECHANISMS														
		Harmonization					Imposition					Diffusion				
		Years					Years					Years				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
African Union	Secretariat staff															
	National offices															
National govts	Biosafety Competent Authorities															
CSOs	Pro-biotech															
	Anti-biotech															

There will be a brief discussion on each mechanism, and in relation to the issues raised in section 3, stakeholders will be asked to give their opinion on how they view the mechanisms in operation to be. Analysis and interpretation of results in this section will be done in conjunction with responses given to other questions and will also serve to gauge stakeholders' understanding of the operations of their programmes or those of the supranational organisations.

_____

Section 5

Any other comments by respondent

_____

BIOTECHNOLOGY POLICY CONVERGENCE IN SOUTHERN AFRICA

Preamble

This is the second research instrument in the study towards '*understanding whether, to what extent and how the African Union (AU), New Partnership for Africa's Development (NEPAD) and the Southern African Development Community (SADC) are influencing cross-national convergence[88] of biosafety systems in the SADC region'.* This second questionnaire raises questions and traces perspectives pursuant to issues emerging from the first round of the data gathering process and review of relevant literature, with a particular emphasis on assessing the feasibility of convergence and understanding the roles being played by the AU, NEPAD and SADC. The data gathered so far has brought out the policy and technology context within which the development of similar systems for cross-national regulation of biotechnology is taking place in southern Africa.

The questionnaire is pre-coded and has multi-response questions in order to facilitate categorization of responses and comparisons. You may use ticks (√) or crosses (x) to indicate your responses. All responses given will be treated with importance and confidentiality. Please feel free to contact me for any clarifications or comments.

1. Basic information

Country: _ _____ Gender   Male ☐   Female ☐

Occupation: (Please tick more than one if necessary)

Researcher (biotechnology or allied science)	
Policy advisor	
Government official	
Private sector official	
NGO staff	
Media staff	
Regional/International Organization staff	
Donor	
Other (specify)	

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[88] Convergence can be defined as the tendency of policies to grow more alike, in the form of increasing similarity in structures, processes and performances.

Which of the three bodies do you work most closely with?

AU	
NEPAD	
SADC	
None	

2. Feasibility and extent of convergence

(a) At what level is it feasible for convergence of biotechnology/biosafety policies to take place?

	High feasibility	Medium	Low
Institutional			
Sectoral (e.g. agriculture, health, environment, trade)			
National (all sectors)			
Cross-national (clusters of countries)			
Cross-national (regional)			

Comments _____

(b) How should convergence take place?

	Most desirable	Medium	Least
Voluntary adoption of models (learning, imitation, transfer)			
Imposition of models and practices			
Uncoordinated responses to pressure			
Other (specify)			

Comments: _____

(c) Best systems would be?

	Most preferred	Medium	Least
Voluntary standards			
Legally-binding standards			
Mixture of the two above			

Comments: _____

(d) Who is best placed to steer the convergence process?

	Best placed	Medium	Least
National governmental institutions			
Civil society organisations			
Subregional organizations			
Continental organisations			
International organizations			
Donor organizations			
Other(specify)			

Comments: _____

(e) What has converged so far?

	High	Medium	Not at all
Entire systems			
Entire policies			
Regulations			
Policy scope and objectives only,			
Institutional arrangements only,			
None			

Comments: _____

(f) How has the convergence taken place?

	Strongest influence	Medium	Lowest
Imposition of practices by organizations			
Experience sharing and linkages among countries			
Training and workshopping			
Resource-provision by donors/development partners			
Provision of models			
Leadership and influence by leading countries			
Uncoordinated learning			
Other (specify)			

Comments: _____

3. Assessment of organizations

(a) Who is best placed to steer convergence of biosafety systems in the SADC and why?

1. African Union

	Strong	Medium	Low
Relevance of mandate			
Resource endowment			
Capacity to deliver (technical and human)			
Reach and influence (political)			
Flexibility			
Clarity of procedures			
Other (specify)			

Comments: _____

2. NEPAD

	Strong	Medium	Low
Relevance of mandate			
Resource endowment			
Capacity to deliver (technical and human)			
Reach and influence (political)			
Flexibility			
Clarity of procedures			
Other (specify)			

Comments: _____

(c) SADC

	Strong	Medium	Low
Relevance of mandate			
Resource endowment			
Capacity to deliver (technical and human)			
Reach and influence (political)			
Flexibility			
Clarity of procedures			
Other (specify)			

Comments: _____

(d) In summary, who has contributed the most towards convergence so far?

	Most	**Medium**	**Least**
AU			
NEPAD			
SADC			
Other (specify) NGO'S			

Comments: _____

Any other comments

_____

_____

Biosafety Regulatory Systems Study (2005 – 2008)

Table A3-1: Stakeholders who participated in the study

	Code	Interactions[89]	Country/Organization	Period of Interaction
1	Pmk1 (S)	1,3	NEPAD – Office of Science and Technology (OST)	July 06, Oct 06, Apr - Aug 07
2	Pmk2 (S)	1,2,3	NEPAD – OST	July 06, Oct 06, Apr – Aug 07
3	Res1 (S)	1,2,3	NEPAD – SANBio	Oct 06, Apr – Aug 07
4	Med1 (S)	3	NEPAD – Media	
4	Res2 (S)	2,3	NEPAD – Biosciences Eastern and Central Africa (BecA), Kenya/DRC	Oct 06, May 07, Jul 07
5	Res3 (R)	3	UNAM, RAEIN-Africa, NABA and AU Project, Namibia	Oct 06, Mar 07
6	Pmk3 (R)	3	University of Zambia/RAEIN-Africa	Oct 06
7	Pmk4 (R)	2,3	Min of Science and Technology, Zimbabwe	Oct 06, Jul 07
8	Pmk5 (R)	1,2,3	Min of Environment, Lesotho	Sept 06, Apr 07
9	Res4 (R)	1,3	University of Swaziland, Biosafety Expert	Sept 06
10	Res5 (R)	1,2,3	University of Dar es Salaam, Tanzania	Sept 06, Apr 07
11	Res6 (R)	1,2,3	SADC Crops Expert	Aug 06, Mar 07
12	Res7 (R)	1,2	SADC Standards, Quality Assurance and Measurement project	Sept 06, Mar 07
13	Pmk6 (R)	1,3	Biosafety Board, Zimbabwe	July 06, Dec 06, Mar 07
14	Ngo1 (R)	1	SADC Biodiversity Support Programme	July 06, Apr 07
15	Pmk7 (R)	1,2,3	SADC Advisory Committee on Biotech and Biosafety	July 06, Jul 07
16	Res8 (R)	1,2,3	Programme for Biosafety Systems (PBS) - Southern Africa	July 06, Mar 07, Jul 07
17	Ngo2 (OR)	3	CABE – African Centre for Bio-Entrepreneurship	Oct 06
18	Ngo3 (OR)	3	Kenya Seed Traders Association	Oct 06

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[89] 1 – first questionnaire; 2 – second questionnaire; 3 – other formal or informal interactions

19	Res9 (OR)	3	University of Nairobi	Oct 06
20	Res10 (OR)	3	World Bank funded programme on agricultural research	Oct 06
21	Res11 (OR)	3	African Centre for Technology Studies (ACTS)	Oct 06, Jul 07
22	Res12 (OR)	1,2,3	ACTS – RABESA Project	Oct 06, March 07
23	Res13 (OR)	3	Programme for Biosafety Systems (PBS) - East Africa	Oct 06
24	Pmk8 (S)	3	AU Biosafety Project	Oct 06, Apr 07
25	Res14 (R)	3	University of Lesotho	Oct 06
27	Res15 (OR)	3	OU/ Commission for Africa	Nov 06, Mar 07
28	Res16 (OR)	1,2,3	McEwan College, Canada	Jul 06, Sep 06, Mar 07, Jul 07
29	Med2 (R)	3	Research Africa	Oct 06, Mar 07
30	Med3 (R)	2	SciDev.Net	Nov 06, Mar 07
31	Ngo4 (R)	1,2,3	RAEIN-Africa	Mar 07
32	Res17 (R)	3	Consultant (ex-FAO, and International Atomic Energy Agency)	Jul 06, Mar 07
33	Res18 (R)	2,3	Scientific and Industrial Research and Development Centre, Zimbabwe	Mar 07
34	Res19 (OR)	2,3	Consultant, UK	Mar 07
35	Pmk9 (R)	3	National Institute for Scientific and Industrial Research, Zambia	Mar 07
36	Pmk10 (R)	1,3	Ministry of Science and Vocational Training, Zambia	Dec 06, Mar 07
37	Ngo5 (R)	1,2,3	Community Technology Development Trust, Zimbabwe	Mar 07
38	Pmk11 (R)	1,3	Biosafety Officer, Biotechnology Authority of Zimbabwe	July 06, Mar 07

39	Ngo6 (R)	1,3	African Centre for Biosafety, South Africa	May 07
40	Ngo7 (R)	2	FoodNCrop/AfricaBio, SA	Apr 07
41	Res20 (OR)	2,3	DPP Open University, and Kenya	Apr 07
42	Pmk12 (OR)	3	Harvard University	Feb 07, May 07
43	Pmk13 (S)	2	Biosafety Project, AU	May 07
44	Ress21 (S)	2,3	North African Biosciences Network – NEPAD/AfricaBio	May 07
45	Res22 (R)	2	University of Namibia	Mar 07
46	Pmk14 (R)	1	Department of Agric Research and Extension, Zimbabwe	Jul 06
47	Res23 (R)	1,3	Tobacco Research Board, Zimbabwe	Jul 06, Jan 07
48	Pmk15 (S)	3	SADC Food Security Unit	July 06, Mar 07: Facilitated links with staff, recognized importance of research
49	Pmk16 (R)	3	Former SADC Crops Expert	Sep 06: Was willing, but could not comment being now out of the system
51	Ngo8 (OR)	2	Advocates' Coalition for Environment and Development – Uganda	Jul 07
52	Res24 (OR)	2,3	Consultant, Biotech/Biosafety Policy, The Netherlands	July 07
53	Res25 (R)	2	Non-practising biotechnologist, RSA	July 07
54	Res26 (OR)	3	Open University	Oct 07
55	Pmk17 (R)	3	Centre for Scientific and Industrial Research – Biosafety Manager	May 07
56	Res27 (S)	3	Nepad OST	May 07, July 07

Table A3 – 2: Stakeholders contacted but did not respond

57	Res (R)	Mozambique	Apr 07
58	Res (R)	Mozambique	Oct 06, Apr 07
59	Res (R)	Botswana	Mar 07
60	Res (R)	Malawi	Feb 07
61	Pmk (R)	Department of Agriculture, RSA	Apr 07
62	Pmk(R)	Department of Environment, RSA	May 07
63	Res (R)	Council for Science and Technology (COSTECH) Tanzania	Oct 06, April 07
64	Pmk (R)	Swaziland	Mar 07
65	Res (R)	Ministry of Higher Education, Science and Technology, Namibia	Feb 07
66	Pmk (R)	National Gene Bank, Angola	Feb 07
67	Res (R)	Attoney General's Chambers, Mauritius	Sep 06, Feb 07
68	Res (R)	Mauritius Sugar Research Institute	Feb 07

Table A3 – 3: Other data gathering opportunities utilized

Code	Event	Location and Time Period
Mtg1	16th International Sociological Association Congress	Durban, South Africa, July 2006
Mtg2	ACTS Training Workshop on Biosafety	Nairobi, Kenya, October 2006
Mtg3	1st Congress of African Scientists and Policy Makers	Alexandria, Egypt, Nov 2006
Mtg4	NEPAD Health Innovation Systems Workshop	Entebbe, Uganda, July 2007
Mtg5	DPP/Innogen meetings, seminars, retreats, reading groups etc	UK, throughout the study period
Mtg6	Innogen Annual Conferences	Sept 2006 and Oct 2007
Mtg7	Development Studies Association Conference	Sept 2007
Mtg8	Observations during visit to SADC, Pan-African Parliament or stay at NEPAD	Botswana and South Africa; August 2006; and April – August 2007