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**Collaboration in biosafety: why should African countries worry about those that are  
technologically weak?**

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## **Abstract**

African countries are at different stages in the use and regulation of modern biotechnologies. A three-year case study of efforts towards cross-national cooperation in the development of the policies and regulatory measures for biotechnology in southern Africa revealed that these differences were seen as one ingredient that could give positive impetus towards coordinated development and management of the technology through experience-sharing among the countries. There is also a set of imperatives for cooperation driven by the geographical contiguity which binds the countries, where it not only becomes easier for the cooperation to happen, but where the spill-over effects of what happens within the confines of another country make it mandatory for countries to work together. National borders are porous, national cultures span these borders and shared policy arrangements are seen as one way of adequately preparing national institutions to deal with this reality. 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. This paper traces some of the arguments, presenting a case for why African countries whether 'weak' or 'strong' with respect to biotechnology may still find cooperation a viable option for strengthening their various positions around this technology and its regulation.

Key words: Africa, biotechnology and biosafety, cross-national cooperation, technology governance

## **Preamble**

'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).

## **Background**

Southern African countries have found themselves in the throes of food emergencies in the past. For example, in 1991, when a 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 let their people consume 'poisonous food' (e.g. Panos Report No.49, 2005:30). The challenges that this dilemma presented ranged from the grandiose and perennial task 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). The scenario created tension at various levels: within countries, between countries, with food relief agencies and donors, among others, as affected countries in the region endeavoured to make the best decision, both individually and collectively, 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, Clark *et al*, 2005). At the regional level, Southern African Development Community (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 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<sup>1</sup> region to put in place national biosafety systems (SADC, 2004).

While all this was 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 oppose or cultivate fertile grounds for cooperation are among the key areas of focus for this paper, which argues that countries advanced in use and regulation of the technology face both gains and losses from cooperating with those that are weaker in these areas. The study demonstrated that because of other connections among the countries which overarch the technology, weakness or strength in the technology was not necessarily a defining factor on whether or not countries should cooperate in the technology.

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<sup>1</sup> The 15 countries making up SADC are: Angola, Botswana, DR Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe

## **Biotechnology – untapped potential?**

Biotechnology, defined<sup>2</sup> 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 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. However, like elsewhere in the world, African 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. For countries of the 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 crisis laid bare 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. This gave new impetus to efforts towards development of regulatory regimes at both national and cross-national levels.

### **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. However, cross-country cooperation is not an easy undertaking for political, economic and

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<sup>2</sup> See Convention on Biological Diversity ([www.cbd.int](http://www.cbd.int))

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 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 cross-national 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 powerful, albeit diminishing, number of GM biotechnology giants (Somsen, 2007: 98). Their aggressive corporate policies of control and the vulnerability of the most developing countries in the face of these powerful corporate actors and states is both a cause for worry, and a source of motivation for the cross-national technology governance agenda, creating both the background and foreground for research studies. Biotechnology is not only a dynamic scientific discipline, but it is also a game of high stakes linked to 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, 2005; Kinderlerer and Adcock, 2005).

The challenges at national level are understandably magnified when the issues play out at regional level.

### **Understanding the emergence of cross-national convergence of regulatory systems**

This paper is based on a study which sought to understand 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 of three supranational organisations, 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 15-country SADC region towards cross-national similarity or convergence of biosafety systems. The case study research was guided by the three factor conceptualisation of Per Olof Busch and Helge Jorgens (2005), which proposes cooperative harmonisation of domestic practices, interdependent but uncoordinated diffusion and coercive imposition of policy practices as three distinct international mechanisms causing policy change and policy convergence. The 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.

Theoretical perspectives, data gathering and analysis approaches for this study 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 realities, yet all important**

Aspirations of cross-national cooperation are usually at a quandary with the reality of countries being significantly different in many respects, including how to access and produce comparative empirical and policy data from the varied geographic and economic terrain of

the region. Communication and accessibility capacities differ among the countries, and among the institutions within the countries, leading to variations in people engaged in policy processes. As Nolke and Graz (2007) observe, transnational governance suffers from the fact that not all participating actors have equal power and 'some are not represented at all'. They further note that this is particularly true for those of the 'wider public interest and from developing countries that are lacking the detailed knowledge ... to participate meaningfully in norm-setting and enforcement'. These realities need to be taken on board as countries move towards cooperation in technology governance.

This was largely confirmed by the biosafety systems study in which it emerged 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'. 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" [Researcher 12, Oct 2006]*

Another set of critical realities 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. 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”*  
[Researcher 6, Aug 2006]

This thought-provoking opinion emphasised the different values attached to triggers for governance responses (cf. Nolke and Graz, 2007). Given the length of time the anticipated cross-national governance mechanism could hold, why the research was still relevant was discussed with the above respondent who confirmed that convergence/harmonisation was being talked about and championed post-2002/2003. This showed that there was a cause and underlying need for the convergence. In addition, measuring or assessing the policy responses 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 from the discussion with this official, and from discussions with others, was that in some 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 confirmed that being ‘weak’ in the technology did not necessarily weaken a country’s influence on the regional technology terrain. 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 cross-national regulatory systems 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” [Meeting 3, 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 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?” [Senior Policy Officer 9, 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<sup>3</sup>. This scenario not only brought a challenge to the quality and authenticity of policy inputs given by respondents, but also ‘threw spanners’ in the cross-national systems, especially with respect to how this could emerge and be sustained. One way of trying to deal

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<sup>3</sup> South Africa and Botswana are known for exhibiting this stance against each other; Lesotho and Swaziland also bemoaned what they termed a ‘big-brother attitude’ from South Africa.

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 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’”*  
[Researcher 15, Mar, 2007].

Different cultures in countries and institutions and these competition dimensions also resulted in some issues being ‘black boxed’ by some policy actors. For example, in some countries practitioners were able to openly name individuals or institutions whom they thought were negative forces in the biosafety arena and the cross-national governance 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 was envisaged to have an effect on the policy inputs. Risk perception also differed among countries (cf. Hofstede’s model (Hofstede, 1991) on dimensions of national culture), 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<sup>4</sup>. There general trend showed that countries with less experience with the technology were more preoccupied with putting in place measures to predict and manage uncertainty compared to countries with a longer association with the technology who focused more on reaping the 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, 2005:127). 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 considered to reflect

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<sup>4</sup>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.

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).

The multi-level and multi-actor nature of biosafety was also a source of confusion due to differences in the interpretation of terminology. 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. Practitioners from NGOs and civil rights 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 elicits different interpretations, and this has an impact on governance mechanisms, including the sufficiency of processes to come up with these mechanisms (Merk, 2007). To the end desirable, governance measures have the challenge of balancing between following established policy traditions and being innovative (Nolke and Graz, 2007).

To add to the confusion of the same words or terms eliciting different meanings, the biosafety arena also faces the challenge of different words which mean the same thing. For example, there were many terms used to imply the desire of countries to work collectively to tackle 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 to express desires for a shared cross-national governance framework. As highlighted earlier, the challenge for governance is to try and reflect these various framings in the processes and the emerging mechanisms, underpinned by appreciation and understanding of 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”<sup>5</sup>[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<sup>6</sup>. 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 presence of these terms was taken to mean that countries and the region were indeed pursuing the cross-national cooperation 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 broken down. 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.

### **Confirming contentions**

Narrated above are confirmations of how governance of biotechnology at the cross-national level in southern Africa is a site of contention between different social, economic, technological, political and several other forces. This further confirms the complexity of the cross-national technology governance agenda; with some of the issues behind this complexity being diverse and fluctuating understandings, fears and motivations for the governance agenda; underpinned by sub-national, national, regional and extra-regional

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<sup>5</sup> 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.

<sup>6</sup> For example in missions and mandates for AU, SADC, NEPAD and other regional bodies.

forces. These forces shape the reality of what various organisational players and countries have to deal with in the envisaged multi-country governance structure, laying bare the realities and fallacies that face the cooperation aspirations which have been on the regulatory agenda table for a long time.

This paper not only confirms complexity, but informs that the complexity is underpinned by many forces that do not necessarily come up if not unearthed by careful and multi-method study which looks beyond the everyday arenas where the policy processes are played out. For example, in the backdrop of a mixture of technology-inherent and technology-transcending challenges facing the policy agenda and connections between the countries at various other levels, it became clear that a purely techno-centric approach to the governance of the technology is less likely to be successful. This calls for the three SNOs and other organisations 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 on harmonisation, 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 form part of the realities that need to be countenanced if effective frameworks are to emerge.

One of these realities is that biotechnology or biosafety policy is a policy measure in many policy fields, such as industry, science and technology, education, environment, agriculture, trade and others, and this elevates the challenge of cross-national comparison to higher levels. In addition, there are many other policy measures which are closely related to and overlap with biosafety, for example food safety, sanitary and phytosanitary measures, environmental safety, among others, and there are different levels of focus on these issues in the different countries, giving difference dimensions of issue-relevance to the different countries, and ensuring that no country could be entirely excluded. Attaining similarity of

biosafety governance mechanisms at the cross-jurisdictional level has to take all this into consideration, and depending on the location of policy actors from whom opinions are sought, different levels of enthusiasm for the cross-national governance framework are likely to be encountered. There are also continuous changes at the bureaucratic and institutional levels in most countries which result in government departments emerging or disappearing frequently, and this presents both conceptual and operational challenges to the policy processes and the emerging governance mechanisms and their effective implementation. These realities and their variation also present opportunities for lesson drawing among institutions and countries.

### **Interplay between mechanisms**

As could be predicted from the crosscutting influence of biosafety, there was interplay between different mechanisms in the emergence of 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, and political clout; among other dimensions. 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 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' to policy processes.

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). The SADC region is congested with different players, some being in the policy field continuously, while

others enter and leave the arena on a continuous basis. In most cases these players include those who have been part of the development of the systems being targeted for change by the new policy agendas, and they introduce a resistance dimension to the processes (cf. Matz and Ferenz, 2005). These operatives include elected officials, bureaucrats/civil servants and pressure groups. Policy entrepreneurs/experts also play an important role within the policy arena in the region, and these come in the form of prominent individuals, think tanks and consultants. They flag knowledge legitimacy in their dealings, while other groups, for example elected officials bring political legitimacy, and bureaucrats/civil servants bring 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 have 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.

### **Multi-layered convergence**

From the daunting contextual realities highlighted above, this paper concludes while achieving and implementing a cross-national framework where all countries face the same obligations would not only be difficult, but could spawn divisive tensions at other levels, the imperative for cooperation will push for alternative mechanisms towards, and different levels of, policy convergence. Granted that respondents from countries that are well advanced in the technology and the regulatory systems indicated their unwillingness to climb down to some *regional-outlook-mandated-framework*<sup>7</sup> 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, still these countries cannot do without each other given the connections among them which override these differences at the technology level (Ruggie, 1982). The stumbling blocks of national interests, the perceived existence of a technology hegemony and the different institutional capacities at national level are part of the context that the regional framework would have to deal with, and this leaves room for a '**multi-layered convergence**' arrangement. In this scenario, countries would occupy different positions or layers with respect to the ideal 'converged position'.

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<sup>7</sup> Own emphasis

The layers or clusters could group countries, for example, according to level of development and use of the technology and regulatory systems, 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. In fact this desire to collaborate with those using the technology and regulating it at more advanced levels puts paid to the argument that there are no common grounds between the 'strong' and the 'weak'. The different positions would 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 European Union 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 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 biotechnology governance structures in West Africa.

## **Conclusion**

This paper has looked closely at the organisational and technological context overarching the cross-national cooperation aspirations in biotechnology among SADC countries. The dominance of this context is clearly visible, raising the stakes for the processes and envisaged outputs of governance mechanisms. One of the key issues emerging from this analysis of the context is the importance of the processes towards attaining the desired regional frameworks, as opposed to the mere attainment of the governance frameworks given the differences that exist among the countries with respect to use and regulation of the technologies. These differences serve as both the source of the existing divergence at policy level as well as lessons for cross-national learning among the countries. Different resources and players will be needed for a successful emergence and implementation of the envisaged cross-national governance framework, including the state command-and-control (“government”) approach to regulation, recognising the deep-seated technological and policy sovereignty desires of the different countries. On the other hand, the involvement of stakeholders such as NGOs does not only bring the much needed breadth and transparency to the policy dialogues (“governance”), but also results in more flexible and efficient policies within a democratised regional policy space wary of the indispensable role of both the weak and the strong countries in sustaining the regional framework. Whether or not the desired leadership, legitimacy and commitment to such broad-based processes exist remains subject to much empirical scrutiny.

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