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Moving from Traditional Government to New Adaptive Governance: The Changing Face of Food Security Responses in South Africa

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INTRODUCTION

Beddington (2009) speaks of a perfect storm facing humanity, dominated by a concoction of food, water, and energy crises and compounded by a changing and potentially hostile climate. For the developing world, these are not future challenges but real and immediate, as evidenced in the 2011 famine in East Africa. Food security has been especially challenging for Africa since the 1970s with the state, as the guarantor of all securities (Hettne 2009), struggling to ensure the food security of all citizens. Sub-Saharan Africa (SSA) is designated as a food insecure region (FAO 2009) and this insecurity will only be exacerbated by its vulnerability to uncertain future stresses like climate change (Boko et al. 2007). We argue that reducing this vulnerability necessitates a shifting understanding of governance from politico-technical foundations relating to the operations of government to more flexible, dynamic conceptualizations. Within the context of increasingly complex food systems requiring 'new' policy frameworks (Maxwell & Slater 2003), "neither classical conceptions of governance nor conventional definitions of food security are sufficiently broad enough to encompass the requirements of food security governance during the 21st century" (Mohamed Salih 2009, p.34). This leads us to the question at the heart of this review: what conception of governance takes into account the complexity of food systems with food security as an outcome?

The structure of the review is as follows: in the following sub-sections, we provide a brief introduction to food security as an outcome of the food system. We also briefly outline the concept of governance in general terms, specifically outlining the schema developed by Termeer et al (2010). Termeer et al (2010) lay out three approaches to governance: monocentric governance that places the state at the heart of political power and authority, multilevel governance that recognises the three-way displacement of governmental power across scales[1] and adaptive governance that has the goal of developing new concepts of governance that can handle the inherent complexity and unpredictability of socio-ecological systems (SES). However, identifying the failures and articulating the necessities of governance from a theoretical perspective is relatively easy compared to establishing such

[1] Termeer et al (2010, p.33) refer to "the displacement of state power and control 1) upwards to international actors and organisations, 2) downwards to regions, cities and communities and 3) outwards to civil society and non-state actors."

practices in reality (Maxwell 2001; Sahley et al. 2005; Drimie & Ruysenaar 2010). The rest of the review showcases how these different theoretical approaches to governance are represented by a variety of structural and institutional responses to food insecurity in South Africa.

In sections two and three we therefore elaborate on the different conceptions of governance, grounding these with empirical examples from the South African food system. The second section deals specifically with monocentric and some multilevel forms of governance, which understand governance in the political sense as embedded in governmental institutions such as those embodied in the South African Integrated Food Security Strategy (IFSS) (see Box 1). However, the success of these approaches has been mixed and they have not resulted in meeting the objective of creating a food secure country. In section three we argue that monocentric approaches have been unsuccessful because the food system is a complex, adaptive socio-ecological system and as such requires an approach to governance that recognises this complexity and dynamism. We therefore discuss how there has been a shift in the governance of the South African food system towards a more 'multilevel' and even potentially 'adaptive' form of governance that recognises the many cross-scale and cross level linkages in the food system. We use the incorporation of non-state actors into the food governance system as an example, highlighting how issues of food security have entered corporate strategy, which has resulted in partnerships between different actors. The paper's overall aim is to highlight how by understanding these different conceptual approaches to governance, their synergies can be harnessed to create a food system capable of delivering food security. We thus conclude with a discussion on what can be learnt from this analysis for developing adaptive food governance in the context of an uncertain future in South Africa.

1.1. A Brief Discussion of Food Security and Food Systems

According to the Food and Agriculture Organization (FAO 1996), "food security exists when all people at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." Such a definition illustrates - after a few decades of refinement from a neo-Malthusian focus on global availability in the 1970s to a mainstreaming of Sen's (1981) entitlements at the individual level in the 80s and 90s – that food security comprises stability of food availability, access, and utilization (Schmidhuber & Tubiello 2007).

More recently food security is recognized as integrally associated with food systems that either succeed in achieving this security or fail to do so. Food systems are characterized as interacting human and natural systems, and can therefore best be conceptualized as socio-ecological systems (SESs) (Ericksen 2008a; Ericksen 2008b). If the food system is understood as an SES, then food security is the result of a complex set of interactions in multiple domains. This complexity is created through interactions across different types of scales and levels[2], as well as through multiple feedbacks[3] and thresholds (Ramalingam et al

Box 1: The Integrated Food Security Strategy (IFSS).

Despite the right to food being enshrined in the Constitution, there is no legislation that binds government to specific policy tackling food insecurity. Due to worsening food security circa 2001/2002, and a realisation the existing response was inadequate, the South African government embarked on a 'new' Integrated Food Security Strategy. The major elements of the Strategy include:

- Acknowledging severe food insecurity in South Africa, it seeks to:
  (i) Increase household food production and trading;
  (ii) Improve income generation and job creation opportunities;
  (iii) Improve nutrition and food safety;
  (iv) Increase safety nets and food emergency management systems;
  (v) Improve analysis and information management system;
  (vi) Provide capacity building;
  (vii) Hold stakeholder dialogue.

- Following a 'developmental approach' that focuses on the productive capacity of people and where these are lacking to ensure resources and income to secure food; the latter includes special emphasis on emergency relief. All interventions will be based on accurate (grounded) information with constant monitoring and evaluation.
-
- Establishing new institutions at each level of government in the form of coordinating units, food security, officers and forums.

The IFSS proposed integrating, or at least coordinating, a range of existing programmes focussed on food security in South Africa. This would combine a range of Departments implementing line function programmes within their own jurisdiction (e.g. the Department of Education would lead school feeding programmes), however, through the IFSS these would now be implemented in a coordinated manner. Leadership through the existing Department of Agriculture and the 'buy in' of the Social Cluster Departments is supposed to ensure such integration, through which comprehensive programmes (or a single Integrated Food Security Programme) can be developed in consultation and under advisement of the institutions created (as mentioned above).

Like many strategies in South Africa, the strategy document provides a useful outline of the problem, prescribes a well-intentioned means to respond and has, as will be discussed, suffered many challenges in implementation.

2008; Ingram 2011). It is therefore possible to have multi-level and multi-scale as well as cross-level and cross-scale interactions occurring within a system.

[3] Feedbacks are inherent processes in coupled socio-ecological systems and they happen when actors respond to change, often having unintended negative consequences especially at different levels (Ericksen et al. 2009).

2008; Thompson and Scoones 2009). Such complex processes make SES unpredictable and they are therefore inherently uncertain. Since most policy is not designed for the surprises inherent in complex systems, these unanticipated feedbacks create challenges for policy (Gunderson 2003) and therefore also for governance. Section three develops this further by identifying the particular characteristics of socio-ecological systems (as complex adaptive systems) that need to be taken into consideration in order to build an effective and adaptive food governance.

The Global Environmental Change and Food Systems Project (GECAFS 2011) framework attempts to reconcile the complexity of wider global change processes (e.g. climate change, globalisation) with an approach that recognises the cross scales and cross-level interactions in the food system. This framework identifies nine elements that make up the three food security outcomes. Food availability comprises production, distribution and exchange; food access comprises affordability, allocation and preference whilst food utilisation comprises nutritional value, social value and food safety (see Ingram (2011) for in-depth explanation). For the purposes of this review, the contribution of the food systems approach is its emphasis on food system activities that occur along the agro-food commodity chain from production to consumption and which then either result in or fail to provide food security. This conceptualization frames environmental change consequences for food systems in the context of socio-economic and political change in order to understand the effects of the multiple stressors that interact with food systems, occasionally making them or their components vulnerable. The relationship between food security outcomes (availability, access and utilisation) and drivers of global change can be analysed through food system activities like food production, processing and packaging, distribution and retail or consumption (Ericksen 2008b). Although not expressly mentioned in the framework, this conceptualisation has important implications for governance and vice versa. The holistic approach shifts emphasis away from a bias towards agricultural production to allow a focus on all food system activities (which can arguably be governed) as opposed to just the outcomes (for which processes are governed). The feedback loop of how these activities then further contribute to driving change is a further important dynamic that needs to be considered in a governance regime. This review therefore takes the food system concept further by applying it to issues of governance in the food system.

1.2. Governance in general terms

The term ‘governance’ is employed across different disciplines and it would be wrong to claim homogeneity between these usages (Stoker 1998; Jordan et al. 2005). The concept has become such a buzzword recently that van Kersbegen and van Waarden (2004 cited in Kok and Veldkamp, 2011)) identified nine forms of governance and Pierre (2000 in Kok and Veldkamp 2011) specified a ‘governance continuum’ that ranges from state-centric approached on the one side through to societal perspectives on the other. Jordan et al. (2005) highlight some consistent definitions from a political science perspective, which refer to governance as the shifting ability of the state to steer society, marked by a growth in multi-level government structures. Other pragmatic descriptions consider governance, as the exercise of authority in a given area and a synonym for efficient management within a specific system (Hewitt de Alcantara 1998). Alternatively, governance could signify “a change in the meaning of government referring to the new method by which society is governed” (Stoker 1998, p.17), which some consider implies a distinction between traditional government and new governance (Jordan et al. 2005). The new method of rule generally implies an increased role for non-state actors in policymaking and even implementation

(Schilpzand et al 2010). This includes the rise of 'new' policy instruments driven by market mechanisms and voluntary agreements in lieu of the traditional legislative capacity of the state (Zito et al. 2003). It is generally accepted that the shift to 'governance' rather than 'government' reflects increasing power being devolved to non-state actors who now participate in a more complex 'heterarchy' rather than a system characterized by hierarchical 'command and control' or market-based 'anarchy' (Jessop 2003). However, many of these governance structures still rely on traditional forms of government regulation (Carl Folke, Thomas Hahn, et al. 2005; Peters 2011).

Termeer et al (2010) provide a useful threefold classification of governance types, namely, monocentric, multi-level and adaptive. Their major focus relates to the relevance of scale in governance. They refer to the seminal paper by Cash et al (2006) that identifies the 'scale challenge' in which the combination of cross-scale and cross-level interactions undermines the resilience of a socio-ecological system. Society faces three challenges arise in managing such a situation (Cash et al 2006: 11):
Ignorance- the failure to recognise these interactions;
Mismatch- the problem of fit between human institutions that do not map coherently onto the biogeophysical scale of the resource that they are designed to manage,
Plurality- the failure to recognise heterogeneity in the way that scales are perceived and valued by different actors, even at the same level.

These challenges have implications for Termeer et al's (2010) governance approaches. Monocentric approaches to governance do not take issues of scale into account, which equates to an issue of ignorance. This type of governance is also referred to as the government perspective (citing Rhodes, 1997), hierarchical governance (citing Hill and Lynn, 2004), command and control systems of governance (citing Kooiman, 1993), or the classical modernist approach of governance (citing Hajer and Wagenaar, 2003). Multi-level approaches recognise these multi-level interactions, but at the price of increased transaction costs for co-ordinating a multiple actors and with the criticism that it leads to a 'hollowing out' of the State as governmental authority is dispersed (Termeer et al. 2010, p.33). Adaptive governance is the attempt to reconcile, not only interactions across multiple levels and scales, but the cross-level and cross-scale[4] interactions too. In the next sections, we review these approaches in more detail in order to assess the state of food governance in South Africa. Our findings show that when applied to a practical example, the approaches provided by Termeer et al (2010) are useful, but that they are not as clean-cut as their schema suggests. In South Africa monocentric and multilevel approaches to governance can become conflated with the result that the governance system is in effect caught between two competing aims of a centralist hierarchical structure recognising the need for multilevel devolution of power on paper, but not in being able to put it into practice due to institutional inertia. In section three we then explore the possibility of an adaptive form of governance arising from non-state actors that are rising to the challenges that government cannot meet. We then draw conclusions on how to incorporate elements from both forms of governance in order to address food security concerns in the country.

[4] Here scale refers not just to the temporal and spatial scale, but to others including, for example, jurisdictional, institutional, management, network and knowledge scales (Cash et al 2006).

2. Food Insecurity as a contemporary governance issue in South Africa

Whereas South Africa is generally food secure at the national level, local and individual food insecurity remains a persistent challenge (Van Zyl & Kirsten 1992; Altman et al. 2009). Moreover, this situation is periodically exacerbated by food crises. Three recent food crises in 1992, 2002/3 and 2007/8, although associated with food shortages with different causes, were most detrimental through food price inflation limiting access to food. Drought in 1992, for example resulted in a 20-30% increase in food prices (Vink & Kirsten 2002, p.14). Thereafter the more complex regional crisis of 2002 (Lambrechts & Barry 2003; Drimie 2004; Jooma 2005) was exacerbated by exchange rate shocks (BFAP 2010) and signals of increased exports to SADC, pushing local food prices up by approximately 16% with maize prices doubling (Watkinson & Makgetla 2002). The latest food crisis was international in scope, the result of a global commodity price shock (FAO 2008) in which South Africa again experienced rapid food price inflation, despite suffering no drastic changes in local supply (Makenete et al. 2007). These separate crises arose from different causes but shared the need for suitable and timely response mechanisms capable of reacting to complex and multi-level challenges. Poor governance exacerbates food insecurity because governments are unable to respond effectively to crises due to poor decision making, limited coordination, weak institutions, and scarce resources as well as the influence of neo-patrimonial politics (Cromwell & Chintedza 2005; Dorward et al. 2005). In South Africa, even the simple operation of handing out food packs and agricultural starter kits in response to the 2002 crisis encountered complicated institutional and operational challenges that were– and remain– difficult to overcome (Poltzer & Schüring 2003; Drimie & Ziervogel 2006).

2.1 Ongoing Limitations of State Responses to Food Insecurity

Eakin and Lemos (2006) illustrate that, although there are prescriptions of adaptive governance, more could be done to understand how these may be achieved in the day-to-day operations of government. Equally important in this review is how these prescriptions are limited by these day-to-day operations. Such an inclination suggests we need to acknowledge and understand the limitations (and successes) of monocentric systems in terms of their impacts on food security and governing the food system.

2.1.1 Monocentric (and Multi-level) Governance Structures and State Responses to Food Insecurity

The current paradigm of governance for food security in South Africa is very much embedded within a monocentric rationale with the State at the centre of all governance. A state's ability to govern can be understood in terms of 'state capacity', which comprises a political/policy capacity (the ability to make informed decisions) and an administrative capacity (that executes those decisions) (Eakin and Lemos 2006). Politically oriented notions of governance deal with the ways in which political systems function and how power relations influence their policies and outcomes. The political dimension is pivotal because it penetrates all realms of governance in which decisions need to be made, relating to power, resources, accountability, priorities, and choice. In decision-making processes, however, the governance perspective requires consideration of how the situation arose and who was

excluded and not only an analysis of the power of who gets to decide (McLennan & Ngoma 2004). Equally important is how politics can encroach into the technical sphere[5].

Technocratic notions of governance de-emphasize the political, and focus on administrative efficiency and effectiveness. The rubric of 'good governance'[6] brought with it new norms of public administration. Within Western bureaucracies, good governance relies especially on an efficient public administration (Hewitt de Alcantara 1998), with new public management proponents calling for the replication of private sector-style, hierarchical management systems in the public sector. Such approaches have had unintended consequences by 'thinning out' public institutions and limiting capacity for good administration (Terry 2005).

While state capacity is easily split into the realms of administrative and political capacity, it also forms part of a wider governance structure. There is significant overlap between governance structures and institutional arrangements, which determine the formation and implementation of policy within government but also act to control actions outside of it. Like governance, the interpretation of exactly what institutions are, what they do, and how they change differs between disciplines, as well as within them (Gorges 2001; Scott 2001). Institutional economics (Cf. North, 1990) considers institutions as the rules of the game, which determine structures of exchange and create various opportunities within society (Ostrom 2003). Sociological perspectives, however, consider institutions as established procedures (Pierson 2000). As institutions may be considered as both formal and informal rules across society (Ostrom 2003), it is understandable that governance should not be conceived as 'government' but as a term that traverses the boundaries dividing the state, private sector and civil society. Yet addressing these implications necessitates the inclusion of what governments can and actually do, especially when it comes to food security. Indeed much of the traditional focus on food security governance lay in getting the institutions right and it is important not to neglect some of the ideas and lessons learnt within the more traditional 'statist' responses. It should also be remembered that the state itself is not a monolithic entity but rather a "complex, multifaceted organization, the internal structure of which represents a complicated nexus of institutions which provide incentives (and disincentives) for political decision-makers and organizational cultures in which bureaucrats formulate and implement public policies" (Ahrens 2006, p.7; Mathekga 2006).

The latter discussion therefore begins to illustrate the blurry distinction between monocentric and multi-level governance- seen in South Africa's case as inclusive governance structures glued together by various institutional arrangements, with the state remaining as the central foundation. The overriding consideration for governance and food security is that the most persistent forces producing hunger today tend to be local or national rather than global, and

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[5] Food security programs, for example, have been critically susceptible to patrimonial politics where their implementation is politically expedient (Cromwell and Chintedza 2005). Outlining the importance of the decision-making process is an important aspect of overall governance that cannot be adequately dealt with in this paper. Forthcoming papers by the authors will unpack such issues in greater detail, but the basic argument is that elements within the decision-making and strategic agenda setting phases of policy-making may chart a course of action not based on what is in fact implementable (see for example Mosse, 2004) or applicable (see discussion below) and reflect entirely different objectives and agendas.

[6] Good governance "calls for improvements that touch virtually all aspects of the public sector — from institutions that set the rules of the game... to the interface of officials and citizens in political and bureaucratic arenas" (Grindle 2004, pp.525–526). It derives from historical changes in the global political economy since the 1980s based on socio-political and economic transformations and the growing hegemony of liberal capitalist democracy (Hewitt de Alcantara 1998; McLennan and Ngoma 2004).

are still governed best at the local or national level (Paarlberg 2002, p.50; E. Young 2004). Yet prescriptions of good governance and indeed adaptive capacity at these levels consider, rather 'unproblematically', the ability of the state to respond where necessary. Grindle (2011) clearly recognizes the shortcomings in such an assumption: it is highly unlikely that all governments in countries where 'good' governance is recommended will be able to institutionalize the broad spectrum of required reforms. She calls for a more realistic framework of 'good enough' governance in which such shortcomings are clearly articulated and specific responses measured and prioritized. Similarly, Duit and Galaz (2008) recognize the difficulties that arise in state-centric approaches to adaptive governance. Little has been done to affirm and recognize the difficulties state departments face when considering similar challenges in the governance of food security, despite an extensive (but dated) literature on the matter.

After growing anxiety over global food security in the 1970s, many countries began taking food insecurity far more seriously. Much focus went into devising appropriate institutional frameworks with cohesive plans to be developed in response. This was echoed by policy-makers, academics and multilateral aid agencies as state-centred responses to food insecurity proliferated in the 1980s. The Institute of Development Studies provides a useful synopsis of the lessons learnt through some of the state orientated interventions[7]. At the time as there was considerable variation in the definition of food security; responses from different agencies differed too. Importantly, food security as a term, provided a planning outcome, (that is programmes were steered toward ensuring food security above all other outcomes), or 'organizing principle' predicated on integration across sectors (Maxwell 1990)[8]. In the planning framework, institutional reforms needed to ensure the production of a coherent policy stance (Huddleston 1990) and an overall strategy rather than a series of projects (Hindle 1990). Maxwell (1990:6) provides the principle lessons of state responses to food security: integrated planning but independent implementation (i.e. no super-ministries), action over planning, the value of risk-taking and innovation and the importance of new modes of organization in multi-disciplinary teamwork.

Despite increasing recognition of the need for adaptive food governance, we still face the institutional barriers that plagued earlier state-based responses to food insecurity. At the crux of the challenges of adaptive governance lies Maxwell's (Maxwell 2001) call for changing organizational cultures by focusing on 'tasks' to be achieved rather than 'roles' defined by line-functions. Maxwell (1990; 2001) observes that government departments, most notably 'food security units', are dominated by a hierarchical role culture, with interactions characterized by rules and regulations representative of a classic Weberian bureaucracy. The bureaucratization of government can hamstring its ability to take on new forms of governance and to achieve specific or specialized tasks. Bureaucratic structures tend to subsume deliberative exercises within conventional processes and return quickly to business as usual (Hagendijk & Irwin 2006). Transforming the very nature of the governmental bureaucratic apparatus then remains a fundamental challenge.

2.1.3 The Institutional Response to Food Insecurity in South Africa

[7] Maxwell (1990) presents a synopsis of the special edition of the IDS Bulletin (1990, v21).
[8] While recent understandings of food security might challenge this logic, the rationale has shown a strong resilience as the discussion below attests.

Complementing the wider literature described above, May (May 1999, p.98) insists that successfully reducing food insecurity in South Africa requires a strategy grounded in a "series of coherent policies and coordinated programs that strengthen the asset base of the poor in respect of labour, human capital, productive capital, and social assets". During apartheid, the government's priority was to ensure national self-sufficiency (by encouraging domestic production on large-scale, commercial white-owned farms) rather than explicitly dealing with accessibility at the local level (Van Zyl & Kirsten 1992; Pieterse & van Wyk 2005). The first of several similar attempts at food security planning was the Food and Nutrition Strategy for Southern Africa, promulgated during the last years of apartheid (Department of Agriculture 1992; Van Zyl & Kirsten 1992). The recommendations from this strategy followed familiar themes of 'holistically' responding to food insecurity, which entailed changing macroeconomic policies and providing emergency relief programs. Similarly, the proposed governance structures and various institutional responsibilities were commensurate with those recommended in the literature. No 'super-ministries' were to be created. Instead, a committee of experts would work with a central unit responsible for multidimensional food and nutritional planning. As the unit would rely on line-functions of different departments, it was essential that the character of the unit permitted multidimensional interaction. Finally, the unit would function relatively independently with the requisite funds and delegated powers.

Through reshuffling linked to the transition to democracy in 1994, the Food Security and Nutrition Strategy was subsumed by more grandiose macroeconomic plans in the form of the Reconstruction and Development Program of the Transition Government (1994-1996) and the market-orientated Growth, Employment and Redistribution Program thereafter. In 1998, a food-security working group was again established to develop a discussion document on food security policy (Food Security Working Group, 1997; Cf. Makhura, 1998). Finally in 2001/2, facing a widespread food crisis in southern Africa, the Integrated Food Security Strategy was adopted to streamline, harmonize, and integrate the government's existing but ineffectual responses to food security (National Department of Agriculture 2002). The strategy document reads almost verbatim of the Food Security and Nutrition Strategy proposed ten years earlier.

Effectively, institutionalizing the IFSS confronted many of the challenges raised in the literature above. One of the major structural challenges to holistic responses remains their effective institutionalization (Scott 2001). Institutionalization in this context refers to how strategies like the IFSS are able to shift the actions of bureaucrats to ensure the delivery of food security objectives. In South Africa, the institutional deficiencies of the IFSS have been the subject of review from a range of perspectives (e.g. (Hamid 2005; Drimie & Ziervogel 2006; Misselhorn 2006; Drimie & Verduijn 2007). Predominantly, despite proposals to realign programmes and integrate planning through new institutional structures proposed within the IFSS (see Box 1)[9], the existing 'rules of the game' (meaning the existing operations of government line-functions) have conspired against the implementation of any reforms. Additionally, Drimie and Ruysenaar (2010) argue there is a disjuncture between understanding the complexity of food security and the reality of this complexity. This is largely reflected in a lingering agricultural production bias in the state with the Department of Agriculture regularly tasked with the coordination of food security - a task well beyond its abilities and indeed its culture. This department lacks the political authority needed to ensure stakeholder dialogue and coordination (with no legislated policy or formal institutions to back it up), has insufficient dedicated funds for food security and is pre-occupied with its line

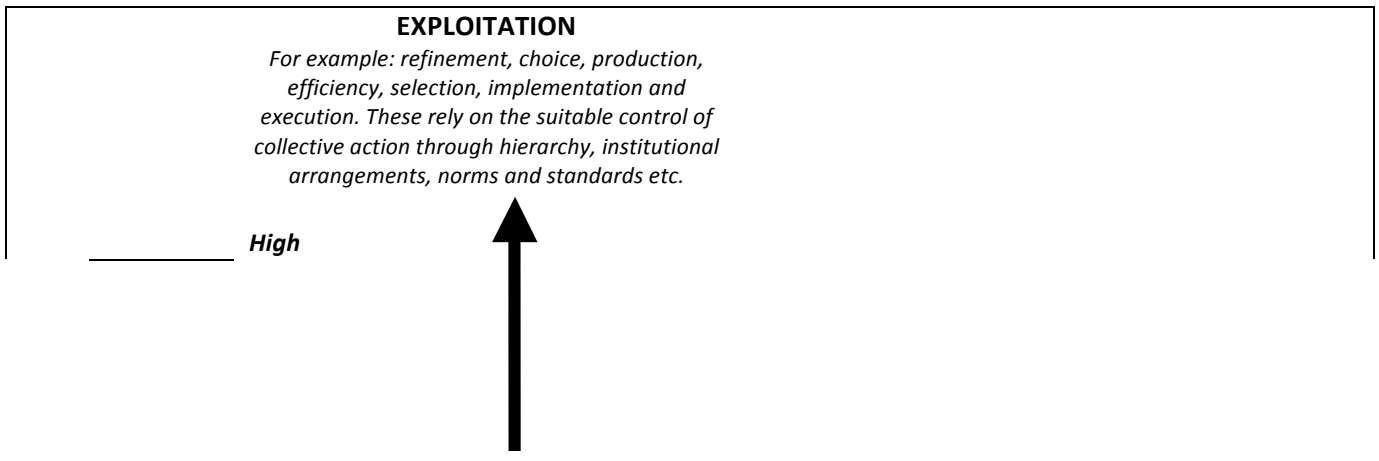
[9] Watkinson (2003) provides a useful summary of individual programmes to be aligned within the IFSS.

function: agriculture. That the institutional arrangements of the Constitution that define provincial departments of Agriculture as largely autonomous only confuses matters further. By this, even the traditional view of a hierarchical governance system within government is a false premise. There is in fact no command and control in agriculture and therefore no real multilevel organisational culture through which to implement the IFSS. The disjuncture becomes even more complicated given the growing complexities of the food system and the increasing role of the non-state actors and a focus beyond purely that of agriculture (Maxwell & Slater 2003; P. J. Ericksen et al. 2009).

One of the main lessons for food governance stemming from the IFSS is that in order for new institutions of governance to work properly, implementers must distinguish organizational culture from formal institutions. A change in terms of the formal institutions (new policies, regulations or even political regimes) does not necessarily mean the fading of an organizational culture shared by the people within them (Mathekga 2006). However it may limit their ability to engage important stakeholders outside of these realms (Drimie and Ruysenaar 2010). Although South Africa has only had a relatively short experience with comprehensive food security policies, the way it has responded reasserts the aforementioned challenges in how responses are organized within the state. That 'revised' policies seem to follow familiar themes hints at received wisdom and institutional memory dictating policy development more than anything else (Keeley & Scoones 1999). This response brings into sharp relief the need for adaptive governance; a process best captured through improving a state's political and administrative capacities to respond to challenges (C Folke, T Hahn, et al. 2005).

2.1.4. Re-classifying State Responses to Food Insecurity

Duit and Galaz (2008) provide a framework for classifying the state's movement towards adaptive capacity and its ability to deal with different (more complex) situations. They suggest that adaptive capacity within the state is largely a function of 'exploration' (innovating new solutions) and 'exploitation' (refining old solutions for efficiency gains), and that through fulfilling each of these, states can be categorized as having a specific type of adaptive capacity, namely, rigid, robust, fragile, and flexible. Each type allows for different abilities to respond to issues of complexity depending on (i) the rate of change and (ii) the predictability of outcome. As governance systems overlap, especially in terms of jurisdiction, management, networks and knowledge but also spatially and temporally (Cash et al 2006) they may either buffer or amplify one another from one level or scale to the next. A rigid national government might therefore benefit from the buffering of more flexible local governance structures in reacting to complex crises, whilst having the same type of response at different levels might amplify problems.



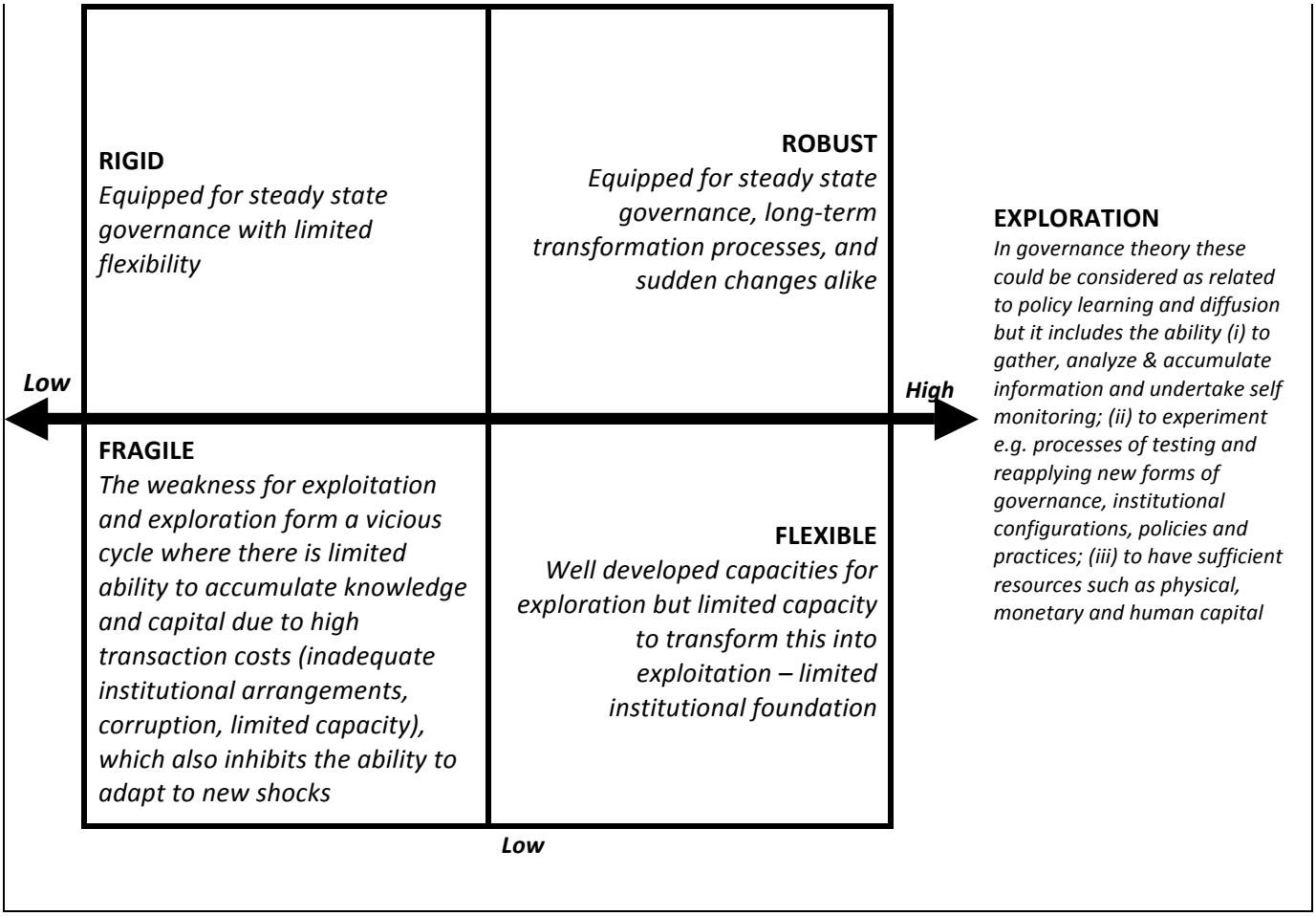


Figure 1: Adaptive capacity of four governance types (Adapted from Duit and Galaz, 2008)

Although such typologies are abstract and generalize the complex institutional arrangements and organisational dynamics within government structures, they nevertheless broadly define ideal governance types and highlight where challenges lie in moving towards them. The IFSS and current government response in South Africa hover between a rigid and fragile governance system, with the bias towards agriculture and ill-conceived institutional arrangements limiting exploration and relying largely on the exploitation of already stretched line functions (Drimie & Ruysenaar 2010).

Recent responses to the 2008 food crisis, which was indicative of complex interconnected causal factors manifesting in price fluctuations and inaccessibility at the local level, highlights the limitation of the South African state apparatus to conceive and articulate multidimensional responses at different levels. Despite claims of a suite of responses applied holistically - with the usual vanguard of food packs and agricultural starter kits indicating only superficially integrated responses – these actually comprised existing programs that (may) individually benefit food security, many of which are controlled and devised at national levels. This response is very different to a premeditated and systematic application of them holistically. It also highlights the complete lack of co-ordination between departments despite the IFSS goals of integration and addressing the wider causes of food crises. What was novel about the response of the 2008 crisis were the changes within the wider

governance of food security outside of government as will be described in the next section. Although a typology of state systems, Duit and Galaz's (2008) framework reinforces the pressing need to find a suitable middle ground of governance that can cope with the peculiar characteristics of complex adaptive systems. This extends to an increasingly accepted rationale that food security requires a move towards adaptive governance beyond the state. However, as the state is likely to remain at the core, such challenges will continue to impede the transition.

3. Expanding notions of Governance beyond the State

The previous discussion is orientated around a politico-institutional foundation of the state's role in governance or monocentric approaches to governance. Alternatives or critiques of the modernist 'Western logic' based on principles of Weberian Bureacracy and'hierarchy' initially and 'the market' more recently have also emerged. For example, the way in which official bureaucracies have overlooked many civilians in most African countries has shifted the focus to social capital and informal processes. These alternatives refer to the ways in which people create platforms of public administration in contrast to traditional bureaucratic models. They require reflexive consideration of new forms of governance that recognize these relationships and processes (Swilling et al., 2002 cited in McLennan and Ngoma 2004)[10] Although we do not expand on the 'African critique' to Western-style liberal democratic governance (see Swilling et al., 2002 for an in-depth analysis of governance in African cities), many of its criticisms reflect the problems we identified in the monocentric approach to food governance. The importance of 'relational capital' in a complex, fluid and inter-connected society with entrenched diversity does not map well onto the governance schema proposed by development institutions (Swilling et al 2002). We need only look to the failures of structural adjustment programmes and in particular their impact on the food system, to get a sense that there must be a wiser alternative for food governance in Africa (Von Braun & Diaz-Bonilla 2008). In this next section, we explore shifts to a more flexible approach to governance that recognises the characteristics of the food system and as a result includes the governance of non-state actors. The examples centre on the private sector and what shifting governance trends can be captured in re-defining what constitutes 'good corporate governance.'

3.1. Characteristics of a Complex Adaptive System

The food system, as an SES, can also be classified as a complex adaptive system (CAS). CASs are process-dependent, organic systems with feedbacks across multiple scales and levels within them, and their emergent properties include having interactive and dynamic components that self-organize (Ison et al. 1997; Folke 2006). The following elements are crucial to maintain a functioning system: a diversity of actors, localized interactions, and the selective processes that shape future structures and the dynamics of the system (Folke 2006). In the food system, these elements are being slowly eroded through an increasing concentration of actors and a distancing of production and consumption. This distance between the use of the resource and the environmental or social consequence (over space and

[10] The scope of this paper does not allow for an in-depth exploration into the important and neglected terrain of functional and appropriate alternatives. Including mention of it here hopes to set the scene for a far greater appreciation for such alternatives within the overall umbrella of 'adaptive governance', which although building on emerging research into informal systems such that of *Bohle et al.* (2009) remains dominated by western ideology and theorization.

time) of its production means that feedback signals do not work properly and so the self-regulating system fails to function effectively (Ramalingam et al. 2008). Through increasing connectivity brought about through globalization, system components that would normally interact become distanced whilst others become over-connected, leading to a breakdown in the system. "The tight connectivity of complex systems also increases the likelihood that a disruption in a system or one part of the system could jump a boundary and produce 'synchronous failure' (Homer-Dixon 2006) or a cascading series of unexpected events (Farjoun and Starbuck, 2007 in Selsky and McCann, 2010, p.170). By definition SES are unpredictable due to their inherent characteristics of complexity, non-linearity and feedback loops that create uncertainty around their future state. Dealing with this uncertainty requires "learn[ing] to manage by change rather than simply react[ing] to it" (Folke 2006, p.255), thus managers must learn to juggle shifting objectives and conditions (Holling 2001). Organizations in such systems need to adopt particular strategies in order to balance their independence to respond to changes, but ensure that they are also sufficiently connected to other system components to maintain their resilience (Ramalingam et al. 2008). Adaptive governance theories advocate that these components interact in a manner that allows self-regulation.[15]

Since the 1960s, some organisations operating in the private sphere have recognised the increasing complexity of the business environment and have tried to develop tools to cope with this, especially for decision-making about the future. Emery and Trist (1965) developed causal textual theory (CTT) where they describe dynamic organisational environments as 'turbulent.' This 'turbulence' results from complexity as well as multiple causal interactions between elements in the system and their changing environment. There are clear parallels between these 'turbulent environments' and CASs because both originate from chaos theory. These parallels include non-linearity, sensitivity to initial conditions, and self-organisation. Roggema (2010) extends the idea of turbulent environments beyond the scope of the private sector to include governments in what he terms 'swarm planning'. He notes that a government with rigid rules and procedures will become inert because under those conditions it is impossible for creativity and new solutions to emerge (consistent with the rigid classifications described above). On the other hand, small innovative companies are able to operate flexibly and react to fuzzy questions. He argues that an innovation shift that values exceptional talents and imaginative creativity where the traditional role of government is lessened to one of stimulating ideas and guiding network-based organisations, is needed to cope with turbulence and all the complexity and uncertainty that it implies. The key message from this body of organisational theory is to recognise change not as a disruption but as a normal condition of organisational life (Ramírez et al. 2010). Collaboration between actors is vital for coping with turbulence and Ramírez et al. (2010) recommend scenarios as a tool for involving the perspectives of many different stakeholders in understanding the future, thus creating a form of collaborative governance. This mechanism will be discussed further in subsequent sections.

3.2. Adaptive Governance in Socio-Ecological systems

In an adaptive governance framework, managing a complex system relies on collaboration between a diverse set of stakeholders operating at different social and ecological scales in multi-level institutions and organizations (Folke 2006, 262). Rhodes (1996) refers to policy making through multi-layered, self-organizing, and inter-organizational networks. It is here where a shift from the primacy of top-down government towards more de-centered

governance mechanisms occurs, in which political capacities appear dependant on the effective coordination of interdependent forces within and beyond the state (Jessop 2003). This, however, does not necessitate solely a 'bottom up' approach: rather than excluding the top-down approach of the state, adaptive governance involved incorporating other actors in order to increase the flexibility of governance responses. This is referred to in subsequent sections.

Recent work by Bohle et al. (2009) on the informal rules governing the urban food sector in Dhaka, combines the concept of adaptive capacity[11] into an 'adaptive food governance'. This they define as an interrelated system of (in)formal rules and networks that are set up to guide the food system to adaptability and resilience in a system under double exposure.[12] This links to the food systems framework that emphasises the inter-relationship between environmental, socio-economic and political drivers (drivers of double exposure) and food system activities, which are the processes that adaptive governance is designed to manage. It requires replacing conventional notions of risk governance, stability, and control with a governance system that is sufficiently flexible, integrated, and holistic to deal with the complexity, uncertainty, and violence of the food system (Bohle et al.2009, 53). Such shifts mirror a changing understanding of the state in light of globalization where it is helpful to think of the State as one element of a greater whole. This moves governance out of the traditional jurisdictional scale into the network scale where relational approaches dominate hierarchical interactions

Folke et al. (2005) identify two essential parts to adaptive governance relevant for this article (see Termeer et al (2010) for a summary of the problems adaptive governance tries to overcome). The first is building adaptive capacity within the system to deal with uncertainty and surprise; the second is supporting flexible institutions and social networks in multi-level governance systems. The world food system is being reconfigured not only by the actions of authoritative actors such as states responding to pressure from their constituencies, but also through the autonomous actions of different social, political, and economic groups whose aim is to ensure their own immediate food requirements, profits or other benefits (Eakin et al. 2010, p.264). Not only are there increasing numbers of agents acting within the food system, but they have different understandings of what food is. A market-driven approach understands food as a commodity, from the environmental change literature, food is seen as an ecosystem service and, from a human rights perspective, food is a basic need (Eakin et al. 2010). Any form of adaptive food governance needs to reconcile these understandings, which means not relying on all-encompassing solutions like market-driven trade policies, environmental taxes, or food aid packages as these only deal with certain aspects of the food system: a more nuanced, holistic approach is required. Including a range of actors in the governance system is an important step in reconciling these disparate understandings of what the outcome of the food system is. Equitable participation across all levels and scales of the food system is crucial to legitimize a system of adaptive food governance (Eakin et al., 2010). Such adaptive or 'new' governance of self-organizing entities tend to form polycentric institutional arrangements (Lee, 2003 in Folke et al. 2005, 449). These nested organizational units operate across multiple scales and from an increased rate of interaction; a diversity of

[11] Adaptive capacity can be defined as 'the ability or capacity of a system to modify or change its characteristics or behaviour so as to cope with existing or anticipated external stress' (Brooks et al 2005 34).

[12] Double exposure refers to the impacts that systems face from both global environmental change and globalisation (O'Brien and Leichenko 2000).

responses then arise, making this system better equipped to deal with uncertainty and change (Folke et al. 2005, 449). In order to build resilience, the role of social capital has been highlighted. Social capital includes networks, leadership, and trust and has been echoed in the sustainable livelihoods literature (Folke et al., 2005; Scoones, 2005). Social learning and building a social memory of knowledge about the dynamics of the system are also important processes to be reinforced by adaptive governance. This emphasizes the call for the increased involvement of a diversity of stakeholders in the governance of adaptive systems.

3.3. Bringing in the Private Sector

It is now widely recognized that there is a definite role for non-state actors, particularly businesses, to play in achieving food security (Liverman et al. 2009; UN 2009; Schilpzand et al. 2010). If we understand the food system as a complex interaction of social and environmental systems, then it is clear that any form of governance for food security needs to take this into account. When dealing with complex SESs, too much intervention or regulation according to a preconceived idea stunts the process of self-organization and inhibits a flexible response to change (Stacey, 1993 in Ison et al. 1997: 261). The strength of the non-state sector in the South African food system relative to that of the government means that there has been sufficient space to allow 'self-organization' of the constituent parts of the system to organize around the concept of food security. This has been a two-fold process.

The first has happened through a gradual shift by business (largely spurred by some key thinkers- like Mervyn King (see IoD, 1994, 2002, 2009)- in extending 'good corporate governance' to include stakeholders in the decision-making process. This process has made the corporation a more flexible organization that can respond more holistically to changes within the food system, although it has also brought with it recognition of many constraints that the system faces, particularly in the form of uncertainty. The second has happened organically through an increase in self-organization behaviour, typified by the creation of cross-sectoral partnerships both along the food system (e.g. between suppliers and retailers) and across it (e.g. between companies and NGOs). This has allowed integration in system governance.

3.3.1. The Shift in Corporate Governance: A South African Example

In South Africa, there has been a shift in corporate governance from an understanding of the role of the firm as purely profit-focused to one where it not only has a duty to its shareholders, but to society at large (Roussouw 2005). The King reports[13] (IoD 1994; 2002; 2009) provided a crucial steppingstone in this process by formalizing the incorporation of environmental and social responsibility into corporate strategy. This response has also led to an indirect increase in stakeholder involvement through setting up partnerships with NGOs as well as the establishment of projects working with local communities and farmers.

South Africa holds a unique position in Africa being relatively better developed with a globally integrated business sector, which gives it a leading role in advancing good corporate

[13] These comprise a set of non-legislated principles and guidelines for company reporting in line with the Global Reporting Initiative. These were first proposed by the South African Institute of Directors in 1994 and there have been two subsequent editions published in 2002 and 2009.

governance in the region (UNECA 2007). The end of apartheid left South African corporate governance in a "highly turbulent and fluid context… where South African companies [needed to meet] international corporate standards without neglecting their allegiance to the African continent" (Roussouw et al. 2002, p.301). In response, many companies facing this dual tension, established governance mechanisms that understand the messiness of the network of interests that companies need to take into account on a daily basis (Hamann & Kapelus 2005). Recognizing this complexity and enhancing the potential for collaboration within a network of interested parties could lead to more sustainable forms of local governance for companies operating under these circumstances (see Hamann and Kapelus 2005 for examples of this from the mining sector).

The institutionalization of the governance principles set out in the King reports, as well as international trends in this direction such as the establishment of the Global Reporting Initiative (GRI), has meant that concepts like 'sustainability' have become common parlance within the business community. This has arisen together with an increased focus on Corporate Social Responsibility (CSR), a phenomenon born in the 1970s that questioned the 'invisible hand of competition' as an ethical regulator of large corporations. In response, CSR was born in recognition of the social costs of economic activity and provided the opportunity for corporations to look beyond profits and focus corporate power on more socially desirable objectives (Andrews 1973). 'Wicked problems reflect the coalescence of social, technical and political dilemmas that cut across boundaries of communities, organisations or nations … therefore decisions impacting on such multifaceted issues being made through a single-issue lens will give rise to conflict between multiple stakeholder groups affected by cumulative impacts or unintended consequences [thereby] compounding systemic volatility of already turbulent environments" (Alahi 2010, p.224). Such positive feedback and interconnectedness across traditional boundaries requires new analytical tools for decision-making that take into account not only the characteristics of such dynamic and turbulent circumstances, but also the implications of the social dimension like deciding who gets to be included and how fluid power relations are constituted. Faced with these turbulent environments, companies are starting to recognize their role within the wider community. This is not an altruistic notion, but the recognition of a need to engage sufficiently with stakeholders in order to minimize risk. This is particularly apparent in the food sector where "companies are changing the institutions upon which they are based in order to adapt to the challenges posed by environmental and social concerns." (Tiger Brands interview, 2009). This has led not only to an increase in social and environmental programs, but a complete overhaul in the way businesses operate (see Pereira et al. submitted).

The re-definition of good corporate governance has extended concepts like sustainability from mere ideals to measurable deliverables. This has a direct impact on the way in which these companies do business and their prioritization of the communities in which they work and who form their customer base. This is encapsulated in another retailer's focus on food security as an area of concern. This has its foundations in the restructuring of their farm development program to be not just about social upliftment, but rather to focus specifically on food security. Hence, from the beginning of 2009 they developed a strategy for sustainability, which they are streamlining across divisions (Pick n Pay interview, 2009). The conflation of sustainability initiatives with other aspects of social and environmental issues is evident throughout the corporate literature, however, despite the confusion, the interesting point is that it is there at all.

3.3.2 Governance through Partnerships between Stakeholders

Complex adaptive systems display certain characteristics including connectivity and interdependency (Ramalingam et al. 2008). This ontology of interconnectedness brings with it a commensurate number of stakeholders that should be included in the governance of the system. Indeed, Checkland's (2005) cautionary reminder that our subjective experience in the world generates interpretations of the world that define our standards, norms, and values, insists that any 'ethical' systemic intervention would need to involve as many perspectives as possible in order to be legitimate. Although this process of multi-stakeholder involvement could often result in conflict, it is nevertheless necessary (Midgley & Richardson 2007). Berkes et al. (2003) expand this further to say that complex systems actually rely on this very existence of a multitude of perspectives. The challenge is how to incorporate these into a governance framework that is not so overburdened with engagement that action is stagnated. Various authors have recognised this challenge and have proposed a variety of approaches including Ulrich's (1987) critical systems heuristics, Checkland's soft systems approach (see Checkland, 1984), and Walker et al.'s (2002) paper on a participatory approach for resilience management of socio-ecological systems. The importance of multiple interacting perspectives can be found in examples of cross-sectoral partnerships that are becoming norms in the food system. The development of partnerships also echoes the trend of increasing autonomous governance between different 'non-authoritative' actors within the food system (Eakin & Lemos 2006).

Partnerships between food and beverage companies and NGOs have become a recent international phenomenon for developing creative solutions to impacts from environmental change (Schilpzand et al. 2010) and this trend has continued into South Africa. Moving into the social and environmental sphere has meant that the private sector has found itself out of its depth and so has sought partnerships with specialists in the field: "We aren't the experts" (Pick n Pay interview, 2010). Involving a variety of expertise helps to ensure that a variety of objectives are met by projects and a more holistic solution is developed. These objectives are also not only centered around going 'green' or becoming 'sustainable' for marketing reasons, but can also include a complete shift in the focus of the company to include social and environmental concerns. In their corporate strategy, Pick 'n Pay explicitly mention food security as a central concern of the company with a focus on various agriculturally focussed initiatives, but couched within an understanding of the complexity of the problem and that it is the needs of consumers that need to be met through a sustainable supply chain (Ackerman 2011). Identifying these joint concerns of government and the private sector is important for creating spaces of collaboration. As well as achieving corporate social/environmental responsibility (CSR/CER) aims, partnering with NGOs has also been developed as a business strategy.

When Backsberg wine estate decided to go carbon neutral in 2006, they partnered with the NGO, Food and Trees for Africa in order to offset their carbon emissions. This eventually turned into an international endeavour involving more of the value chain as their wine importers in the UK also decided to go carbon neutral in order to negate the argument that importing wine from Europe was less carbon intensive (Backsberg Wine Estate interview, 2010). Recognizing the potential knock-on effects of such projects in shaping the wider system are critical in a discussion of how adaptive governance could play out in practical terms.

There are also tensions between formal institutions and the more informal rules emerging from the system. Although there has been a level of co-operation between competitors on environmental issues like recycling "because the area of impact is bigger if you do it together" (Woolworths interview, 2010), this collaboration has been problematic to implement because of pressure from the competition commission (Pick 'n Pay interview, 2010). These tensions need to be addressed through an increased recognition by the respective parties of how the governance of the food system is changing. The Competition Commission plays a central role in South Africa by limiting collusion and bringing those who engage in unfair practices to book. In 2008/09 there was a case of collusion between food processors over fixing the price of bread that was brought before the Commission (see Competition Commission 2010). The subsequent investigation resulted in substantial fines for those companies involved, serving as a stern warning for those who engage in such practices. At the same time, this important role needs to be re-evaluated so as not to inhibit positive collaboration between competitors, especially over social and environmental issues. This is one of the key challenges that needs to be addressed in an 'adaptive food governance' system. Collaborating in non-competitive areas brings benefits and opens up the possibility for further collaboration (Woolworths interview, 2010). By forming connections between different organizations involved in the food system, across different scales and levels, the system 'self-organizes' to build its resilience. Problems can be tackled from a more holistic perspective by involving more voices and solutions are therefore less rigid and constrained.

3.4. The Challenge of Uncertainty

Uncertainty of future conditions and states of the system has been recognized as an important element of a complex adaptive system (CAS), but most management systems still rely on understandings of stable equilibria where the future is predictable given enough information and can therefore be planned for (Ramalingam et al. 2008). Embracing uncertainty therefore clashes with the traditional management idea that seeks to eliminate it, but there is an increasing recognition that it is better to work with inevitable uncertainty than to plan based on flimsy or hopeful predictions (Ramalingham et al. 2008: 27). This is still a daunting concept, especially when entire companies, livelihoods, or a country's food security hang in the balance. Building a resilient food system means not only increasing its capacity to absorb shocks and maintain its function, but also means increasing its capacity for renewal, re-organization, and development in line with understanding the process of adaptive cycles (Folke 2006: 253). This requires an 'agility' of response where organizations need to adapt rapidly to unexpected conditions; in other words they need to improvise (Ramalingham et al. 2008: 40). The element of uncertainty that comes with environmental change and specifically climate change has been identified as a key challenge facing the South African food system (Pick n Pay interview, 2009; Woolworths 2009). The potential impacts of climate change have been recognized, but not knowing exactly what is going to happen, when and how intense the event is going to be, makes planning for building resilience extremely difficult. Food supply chains operate across multiple levels and scales (in the same manner as the food system) and there is uncertainty between all interactions through unanticipated feedbacks, unknown thresholds, nonlinear dynamics, and sudden shocks, which makes the system unpredictable. One of the main challenges is to improve communication across multiple levels because impacts at one level will have an effect on other levels (identified in multilevel governance approaches). Co-ordination and communication not just between actors working on similar temporal and spatial levels (e.g. companies and NGOs), but also across scales (e.g. between government and business) is crucial to ensure these nested systems do not to

collapse through positive feedbacks. A key means of improving institutions for food security in South Africa is through increased interaction between different actors in the food system and in particular to involve the state in these processes of self-organization through fora such as the food security forum that brought actors from different aspects of the food system together to discuss issues of food security after the food price crisis in 2008 (Gordon Institute of Business Science 2009). Although this will not negate the problem of having to deal with uncertainty, it will help to build capacity that allows institutions to respond to uncertainty.

Creating institutions that are flexible enough to respond to this information flow is as critical as creating capacity to respond adequately to shocks. Neither prescriptive decision-making to cope with unexpected shocks (crisis management), nor the rigid, state-centered existing institutional arrangements of the IFSS are adequate solutions. Tackling complex cross-level issues requires a combination of 'top-down approaches (which are too blunt and insensitive to local constraints and opportunities) and bottom-up approaches (which are too insensitive to the contribution of local actions to larger problems)' (Termeer et al 2010: 36). This entails making use of strategies that understand the dynamics of change, accept uncertainty, and strike a pragmatic balance between present concerns and future potentialities through the use of tools like scenario planning rather than forecasts (Ramalingam et al. 2008; see also Heinrichs 2006).

This requires leadership, which disrupts existing patterns, encourages novelty, and interprets rather than creates change (Plowman et al. 2007 in Ramalingam et al. 2008, p.49) and is a step away from the top-down hierarchical idea of leadership that is normally associated with governmental organizations in particular. A shift from the idea of forecasts to the use of scenarios can be important for embracing adaptive governance. Scenarios are particularly necessary in complex systems that "exhibit turbulent behaviour, extreme sensitivity to initial conditions, and branching behaviours at critical thresholds' like the food system" (Wood et al. 2010, p.49). Scenario building offers potential for "imaginative and systemic thinking, which is becoming more valuable in an increasingly volatile world characterised by rapid change, surprise, discontinuity, and frequent shocks, which are not easy to anticipate" (Selsky & McCann 2010, p.167). They have recently become popular mechanisms for companies to deal with future uncertainties in their strategic planning, but have been employed for over forty years by companies, military planners and policy-makers (Ramírez et al. 2010). Extrapolating present stability into the future is a common fallacy in strategic planning, which can be overcome through continuous change thinking because when discussing the possibility of future disruption, participants are forced to engage with a future contextual environment, which they may not previously have conceived of in a structured way (Selksy and McCann 2010). The benefits of increased participation and the multiple perspectives that are allowed in scenarios have the double benefit of giving managers a more varied set of possible responses to future disturbance (Selsky and McCann 2010: 181). These mutually beneficial results of active engagement in scenario building exercises has also been highlighted by (Heinrichs 2006)although he offers a proviso that the outcomes of the exercise will be largely dependent on how the process is designed and which stakeholders are invited to participate. Creating a platform for inclusive engagement between all stakeholders is of critical importance with the resulting insights being invaluable tools for adaptive governance. Scenarios are "at home in the world of continuous change and the turbulent environment" (Selsky & McCann 2010, p.180) and are therefore useful tools for planning in uncertain futures.

4. Concluding Discussion

4.1. What can Government learn from a Complex Adaptive Systems Approach?

Despite a criticism of the South African government's ineffectiveness in implementing an effective food security strategy, this by no means negates the importance of the state. The state is still the accountable (and dominant) entity when it comes to redistribution to the most vulnerable. In South Africa, this role is enshrined in the country's Constitution (clause 27 (1) (b) of the Bill of Rights, Republic of South Africa, 1996). However, in order to fulfil this role it must leverage resources and knowledge from nongovernmental entities and through these synergies build adaptive capacity within the food system (Eakin and Lemos 2006: 11). Food governance is no longer purely the ambit of the state, but lies in the complex articulation between the state, the private sector, international institutions, and civil society and the state requires capacity in order to manage these relationships (Eakin and Lemos 2006: 14). The state must provide support to private sector, but give special attention to the most vulnerable that are often left out of discussions (Dorward et al. 2005). This means going beyond the artificial, but persistent divide between state-led and market-driven solutions (Jessop 1998; Dorward et al. 2005) to an understanding that effective governance comes from the intersection between these formal and informal rules. Furthermore, although centralized organizations like governments are not necessarily equipped for dealing with complexity, they are still able to create enabling environments for adaptive governance through legislation, recognizing bridging organizations, encouraging creativity, and fostering an environment for flexible institutions (Folke et al. 2005, 463)14.

There is already evidence of this shift happening in South Africa in the New Growth Path (NGP) document released by the Economic Development Department (Economic Development Department 2010). This document explicitly identifies the agricultural value chain as a key sector for growth in the South African economy. It also explicitly emphasizes the importance of social dialogue and recognizes that business, organized labour and civil society are core institutional drivers for change in the country, but that there is need for more constructive and collaborative relations between all stakeholders. Although this new strategy will undoubtedly face many teething problems, the recognition by government of a need to work cross-sectorally and to engage constructively with stakeholders is a step in the right direction and much can be taken from this. Although the NGP has also received quite a lot of criticism from some quarters, it has provided the platform for an honest discussion to be had on the future of South Africa. It also illustrates how the government could negotiate the new spaces of governance that are rapidly developing, particularly in the food sector, so as to ensure a flexible rulemaking system that still protects the most vulnerable.

On a broader level, adaptive capacity is best captured through the ability of a state's policy and administrative capacities to respond to crises. In the face of globalization, which presents governments with new tools but also a wider sphere of problems, these crises have generally become more complex (Eakin and Lemos 2006). While these new problems have led to changes in novel areas, such as biotechnology, transformations with respect to food security are less obvious. The case study of the IFSS suggests that, although food security is

[14] This shift towards adaptive governance is particular to certain complex system and that the traditional role of the state for providing coherent policy on specific issues should not be negated

recognized as a complex problem by officials, the response remains locked into 'traditional' operations of the bureaucratic state. Not only does this have serious implications for the food insecure, it questions the ability of government to function as an intermediary as well as the potential for synergies between state and non-state actors. As Lyall et al. (Lyall et al. 2009, p.3) highlight, "the limits to governance in the global South are thrown into sharp relief precisely by the limits of the state to control and lead debates". When it comes to the adaptive governance of food security, such constraints do not necessarily mean that governance systems are not changing. It only means that much of the change is occurring without the inclusion of the state, which can be both useful, but in the long-term could prove highly problematic considering the aforementioned role that the state has to play in supporting the vulnerable. This opens up an important area for further research on the role of the state in supporting the vulnerable using an adaptive governance approach.

4.2. Dealing with Complex Problems Requires Governance that Recognizes this Complexity

Adaptive governance of a complex system like the food system needs to meet certain criteria. It needs to be holistic, interactive, flexible, and capable of dealing with uncertainty, change, and surprise. A critical implication for understanding governance of the food system is that it is already a hybrid system combining inputs from government as well as that of business, NGOs, and even private citizens (Schilpzand et al. 2010). This multidimensionality is already reflected in the new institutions of partnerships that are developing between different actors within the South African food system. Encouraging polycentric arrangements of these cross sectoral, multi-level interactions is vital for maintaining the system's ability to self-organize and remain flexible. However, building the adaptability of the system requires creating capacity for it to manage its resilience in the face of uncertainty and surprise (Folke et al. 2005, 457). Uncertainty has been recognized as a major future constraint within the linear cause and effect thinking that permeates management decisions around future planning. This is useless in a complex system where the dynamic process of learning and understanding patterns of interaction and association should rather be emphasized (Ramalingham et al. 2008, 12).

There needs to be a shift in perspective from wanting to control change in a system assumed to be stable, to sustaining pathways of social development that are cognizant of the increased frequency of abrupt change (Folke et al. 2005: 443). Partnerships are important mechanisms through which to engage actors from multiple perspectives and with diverse expertise in order to solve complex problems. When it comes to the need to make decisions about an uncertain future, scenarios have been identified as useful tools through which to get an array of stakeholders to engage with possible futures thereby internalizing current issues. A more widespread adoption of these practices is one way of actively shaping the food system whilst acknowledging this shift towards recognizing its characteristics of complexity, which cannot be controlled or managed by a handful of actors.

4.3. Summary and Future Considerations

If the objective of food security is to be achieved through building the resilience of the food system, new models of governance need to be incorporated into current systems of practice. This paper has identified a new governance space developing across a range of actors, which has been made explicit through the creation of cross-sectoral partnerships to deal with

complex issues like sustainability and food security. The South African food system is therefore showing signs of moving towards this polycentric organizational model, at least within a network of non-state actors, but it is necessary for the state to adapt its monocentric model to enable it to get involved and ensure that the outcomes are fair for the most vulnerable in society. Arguably, there is a long road ahead: learning to cope with uncertainty rather than planning to control it is going to be a challenge. With the signs of an increasingly hostile environment becoming more apparent, adaptation is finally entering discussions around governance. However, without recognizing the complexity of the food system, it will be impossible to build sufficient adaptive capacity to build the country's food security under future uncertainties. This review has shown that in the South African governance structure there are elements of flexible, adaptive thinking, but it has not yet permeated governmental strategy around the problema of food insecurity. A shift to adaptive food governance across all actors within the food system needs to happen sooner rather than later. How to support this process without being overly prescriptive is likely to prove the greatest challenge. It will be an iterative journey, but it needs to be undertaken now. "In the face of intensification of societal complexity ... [we should see governance as] the complex art of steering multiple agencies and institutions which are operationally autonomous from one another and structurally coupled through... reciprocal interdependence... Governance appears to have moved up the theoretical and practical agenda because complexity undermines the basis for hierarchical top-down control" (Jessop 2003 in Ramalingham et al. 2008, 51). If we are to weather the imminent storm (Beddington 2009), we need to start taking the idea of how to govern complexity seriously because insufficient adaptation in the food system's governance will negate any positive benefits made in other areas of adaptation.

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