

The future of the food system: cases involving the private sector in South Africa

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Keywords: Food system, environmental change, socio-ecological systems, global change

Abstract

The global food system is facing unprecedented pressure from global change processes. These pressures are exacerbated by transformations in the food system through the expansion of agrifood corporations that are consolidating their power in the global food chain: in their control over the technology of production, the distribution of food commodities, their procurement policies and marketing techniques. Although Africa largely missed the Green Revolution and the subsequent wave of supermarket expansion that hit the West and then spread to Asia and Latin America, this is unlikely to continue. With a large proportion of sub-Saharan African countries' GDP still heavily reliant on agriculture, global trends in agrifood business are having an increasing impact on African countries. South Africa, a leader in agribusiness on the continent, has a well-established agrifood sector that is facing increasing pressure from various sources, including climate variability affecting production, a global drive towards 'sustainability,' certification and the need to support local capacity development especially in the agricultural sector. Using a socio-ecological systems approach that appreciates both the environmental and socio-economic drivers of change affecting processes in the food system, this paper situates the future of farming systems under these drivers of change and looks at how they can be harnessed to improve the adaptive capacity of the food system to an uncertain future. The paper uses qualitative data from preliminary semi-structured interviews with corporate executives from two South African food retail companies. Based on this information, the paper draws conclusions regarding how macro-trends both within and outside of the formal food sector are having repercussions for farming systems. These include the recognition that building resilience in the face of an uncertain and complex food system requires a holistic perspective that capitalises on the system's diversity and provides a governance structure that incentivises business to develop strategies that incorporate the needs of other actors.

1. Introduction

The global food system is undergoing an unprecedented transformation: not just from the significant impacts of global environmental change (GEC), but also from the rapid expansion of transnational agribusiness. In the North, it has become a globalised, interconnected, efficiency-driven socio-ecological system and the South is quickly being integrated into this new model. But, if the outcomes of a well-functioning food system are food security, social and environmental welfare (Ericksen 2008) then this current version has so far failed the planet's poor. This leaves the question of how a rapidly transforming food system will respond to the challenge of providing these outcomes whilst adapting to future environmental issues, most notably climate change. Developing a system of adaptive governance to meet these challenges is therefore an important area for research, but it requires a theoretical approach that appreciates the constraints to understanding the uncertainty inherent in such a system and provides a new method of engaging with the complexity of an interconnected and unequal global system. This paper employs a socio-ecological systems (SES) approach for understanding the multilevel relationships between the human and environmental components of the food system. This approach acknowledges that many change processes are non-linear, that inherent uncertainties constrain decision-making, and that since the food system comprises many different actors, it is important to include a range of viewpoints. Pressures from global change can pose a threat to sustainability and food security, but this paper argues that it could also provide an opportunity to transform the governance of the food system through positive engagement with a variety of stakeholders.

1.1. A socio-ecological system under 'double exposure'

Socio-ecological systems (SES) are the complex combination of social (e.g. economic, political, legal etc) and ecological systems. This complexity is created not just through interactions of interdependent variables across scales and levels (Ramalingam et al 2008, Thompson and Scoones 2009), but also through multiple feedbacks and thresholds present in the system at large. 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 2010: 30). Ericksen (2008a) argues that the food system is a prime example of an SES because it exhibits just these characteristics. For example, feedbacks in the food system include impacts on ecosystem stocks and services from food system activities (like production and distribution) and social feedbacks include people's responses to shocks by drawing down their assets beyond critical thresholds and falling into the poverty trap (Ericksen et al 2010: 31). Since most policy is not designed for the surprises inherent in complex systems, these unanticipated feedbacks create challenges for policy (Gunderson 2003). Furthermore, the food system is highly dependent on two chaotic systems: the climate and the economy. Uncertain changes in these systems add to the complexity of studying the future of the food system. In order to make effective decisions regarding the food system and in particular if we are to adapt to the predicted changes that will impact it into the future, we require new tools and methods of understanding how it is currently being transformed.

'Double exposure' provides a lens through which to analyse the multiple global change processes that impact regions in a dynamic way thereby allowing for analysis at different spatial and temporal scales whilst including contextual factors and feedbacks. Double exposure is understood here as the combined effects of globalisation and global environmental change (GEC) that act individually, synergistically and even antagonistically to create uneven outcomes or 'winners' and 'losers' (O' Brien and Leichenko 2000, Kates 2000, Adger et al 2003). In the context of the food system, climate change has been identified as a major threat to food security, especially from its disproportionate impact on developing country agriculture (Fischer et al 2002). However, double exposure emphasises the need to contextualise this threat within broader processes of globalisation that are already transforming how the food system achieves or does not succeed in achieving food security- and the private sector is at the forefront of this food system revolution.

This paper therefore aims to discuss the implications of the broader transformations in the private sphere of the food system on agricultural systems (and smallholders in particular) and food security outcomes. Within the context of sustainability initiatives and responses to climate change more specifically, this paper uses case study material from South Africa to illustrate the importance of coming to terms with these complex processes and their interactions in order to formulate an adaptive food governance that can meet food security objectives. The paper has a two-part structure: the next section discusses the importance of private sector actors in shaping the food system and this is followed by an empirical section describing how these actors are self-organizing as a response to climate change. In order to understand the various incentives and constraints around corporate decision-making in a complex system, I employ evidence from qualitative data gathered in preliminary semi-structured interviews with with corporate executives from two South African food retailers.

2. Buying our food

How and what we eat is largely determined by the contextual socio-economic, political and cultural fabric of the food system in which we find ourselves and processes of change cannot be divorced from these contextual factors. The role that private sector actors play in shaping this context has become highly significant over the second half of the last century. These actors can be classified into four broad categories: 1- the companies providing inputs in the agricultural system in the form of seeds, irrigation technology, farming machines, fertilizers etc., 2- the farmers that produce the food whether they are large, commercial farmers or small-scale farmers, 3- the middlemen that buy the produce from farmers and 4- retailers that sell the final produce directly to consumers. These are not mutually exclusive roles, but can often be played by the

same actor further concentrating power in an already unequal system (see von Braun and Diaz-Bonilla 2008, Patel 2008). These actors and the processes that they are involved in are diverse across temporal and spatial scales thereby reinforcing the complexity of the food system. This diversity of actors has become an important element of the food system through their role in precipitating the fundamental changes that it has undergone over the last century. These are briefly discussed below.

Western food systems have undergone four critical changes over the past two centuries:

- Industrialisation and mechanisation combined with urbanisation
- The establishment of supermarkets as self-service locales where all one's food can be purchased
- Globalisation of supermarkets and the establishment of multinationals
- The 'alternative food' movement as a response to the increasing disconnect between the majority of consumers and how their food is produced

The industrial revolution sparked a mass movement away from farms into urban areas and so there was a need for a steady supply of produce being moved from farms (that therefore needed to produce higher quantities to feed urban populations) into the cities. With this came the need for stores from which people could purchase these food products. The industrial revolution also brought with it increased mechanization of agriculture and a move away from it being a labour intensive sector to one more reliant on other input costs. These inputs are associated with industrialization and its concomitant scientific discoveries. One of the most notable of these discoveries was the Haber-Bosch process¹, first observed in 1909, that led to the production of synthetic fertilisers (Galloway et al 2002). Fertiliser in turn contributed to vast increases in the amount of food that could be produced on the same amount of land- i.e. intensification (Mosier et al 2004). This trend created the space for companies to start specializing in agricultural inputs of farm machines, seeds, fertilizer and pesticides and the result is the agribusiness giants of today: e.g. Monsanto, Bunge, Cargill, Agrium and Archer-Daniels-Midland.

The next big transformation was the evolution of the supermarket craze. Although the evolution of supermarkets is attributed to America, it was actually European groups that pioneered the establishment of the grocery stores that were to dominate global food retailing business a century later. The first Sainsbury's was officially opened in 1869 by J Sainsbury and his wife in London, although the company was only privately listed in 1922. The next biggest extant supermarket was founded in 1887 in the Netherlands by Albert Heijn and became Ahold. The French followed soon after with the establishment of the first Casino store in 1898. These retail giants were to become part of the food retail oligopoly that would come to dominate the western world over the course of the twentieth century and then spread to all reaches of the globe (STORES 2011). The remainder of this powerful group of food retailers were established in the mid-twentieth century; the UK's Tesco's in 1952, France's Carrefour in 1958 and the US's Wal-Mart in 1962.

The recent process of globalisation is directly linked to this phenomenon of the global expansion of supermarket chains into multi-national corporations (MNCs) that have begun to establish themselves in developing country markets since the 1990s (Reardon et al 2003). These companies now have the power and the networks to source and supply anything from everywhere; it has become commonplace to be able to find Indian mangoes, South African avocados, Kenyan green beans and Chilean grapes all in the same aisle at your local European supermarket. However, this monopolization of the global food system by a few companies (Patel 2008) has brought with it a backlash as consumers want to know more about what they are eating- how it is grown/reared/caught, where the seeds come from and how many chemicals and fertilisers were applied to it in order to increase yields. In response, the evolution of 'alternative food networks' has attempted to bridge the ever-increasing divide between food production and consumption (Goodman 2009). These 'alternatives' include the organic, local and slow food

¹ The Haber-Bosch process occurs when Nitrogen (N₂) is fixed into Ammonia (NH₃), a form of Nitrogen that can be used directly by plants and is therefore a large component of fertiliser.

movements and the more mainstreamed or commercialised processes of food labelling and certification.

Labelling in particular seeks to create a sense of trust that the product in question has been made according to a particular set of 'ethical' standards. Fair Trade wine, Rainforest Alliance coffee and even Organic cheese are certified labels that all impact production based on the preferences of 'ethical' consumers and effectively puts them (and their certification bodies) in charge of how food production is undertaken. This has particularly interesting repercussions for farmers in the developing world where much of the changes are taking place. For example, studies on the Roundtable on Sustainable Palm Oil (RSPO) have shown that despite an attempt at full equality and engagement among multiple stakeholders, the major processors and traders still fill the majority of the seats at the table (Paoli et al 2010). Fair Trade certification similarly suffers from good intentions in the North that do not necessarily translate into actual change for producers in the South (Valkila and Nygren 2010).

There are also certification schemes and standards that are not driven by consumer markets, but that have a significant impact on how food is grown throughout the world. In 1995, the World Trade Organisation (WTO) prescribed a set of sanitary and phytosanitary requirements for traded food products (the SPS agreement). These are aimed at ensuring that consumers are being provided with food that is considered 'safe' by international standards, but that these regulations are not being set unduly high in order to protect domestic producers. Unfortunately it is often quite impossible for small-scale producers to meet these rigorous requirements and so their ability to trade internationally is compromised (Stiglitz 2006). Another set of standards that producers are often required to adhere to are those set by retailers in order to assure their customers of the quality and safety of their food. GlobalG.A.P is just such a retailer-led standards system that was instituted by European retailers and is now employed internationally. Although initially intended to ensure transparency in the system thereby reducing risk, it has created a situation where farmers *de facto* need to meet their requirements if they are to sell their produce- therefore if farmers cannot meet the requirements or afford the certification process, they lose out on the market (Tennent and Lockie 2012). These retailer-led standards offer a novel form of value chain governance in the globalising food system, but in doing so they reinforce the oligopolistic structure of the food system where power is concentrated in a few actors that set the rules of the game (Tennent and Lockie 2012).

The creation of a market where knowledge about the production process can translate into a price premium has important implications for governance of the system so that trust is maintained. Under this scenario, there are three forms of governance that provide the context of how farming systems function and in each case there are a diverse array of actors involved.

- 1- Consumer-led governance is driven through the creation of a market for knowledge about how products are produced and the mechanisms it employs to ensure trust in these products are certification and labelling schemes. It relies on customers wanting to ensure a certain ethical standard in the production of their food.
- 2- Retailer-led standards are arguably also formulated in order to meet customer requirements, but are designed by retailers in isolation and dictated to farmers rather than including them in the process. International standards from the WTO can be included under this type of governance as standards are set by a third party that is neither involved in producing the product nor consuming it.
- 3- A mutual process between producers and buyers that addresses the needs of both- the key is to build on meeting mutual needs and thus creating equal benefits: retailers want produce that they can sell to their customers who want good, healthy food and farmers want a market; the real contention lies in how the specifics are negotiated. If the negotiation is conducted in the spirit of partnership and mutual understanding rather than through dictated terms, this is more likely to meet the requirements of all parties better (Pereira and Ruysenaar 2012). The key is to make the result as mutually beneficial to all parties as possible.

All cases involve a variety of different actors with a multitude of perspectives and objectives that shape the outcome of the system. The focus of the next section is on how processes of self-organisation within the South African food system are moving the system towards the third type of governance in response to various socio-environmental pressures through the formation of partnerships between different actors. Although not definitive, the empirical evidence presented shows that enabling spaces where the needs of multiple stakeholders can start to be negotiated do exist. The challenge is to find these spaces and to nurture them in order to provide incentives for more powerful actors to engage in 'adaptive governance.'

3. South Africa as a case study

South Africa has a well-established agrifood sector that is facing increasing pressure from various sources; including climate variability affecting production, a global drive towards 'sustainability,' certification and the need to support local capacity development in the agricultural sector (Pereira and Ruysenaar 2012). At the same time, with very high levels of poverty, especially in rural areas, the South African government's New Growth Path strategy highlights the need for rural development with a specific focus on smallholder job creation (EDD 2011). These larger trends are affecting agricultural choices at the local level and need to be harnessed to improve the adaptive capacity of rural households to the uncertain future impacts of climate change.

South African food business has a triple prerogative regarding the food system:

1. To ensure development and job creation in order to establish a customer base that can afford their products (this is especially true of those retailers expanding into rural areas).
2. To build a successful food sector through creating and sourcing products that meet not only the requirements of customers, international food safety requirements, but that are also socially acceptable for an 'African context' (Malan 2005).
3. To ensure that these above objectives are resilient under pressure from global environmental change.

It is imperative that these processes are understood in the context of the South African food system's ability to provide food security. Navigating this balance will prove tricky, but it is vital if South Africa, and the continent, is to turn the double threat of climate change and a globalising food system into an opportunity to build resilience and ensure food security. The next section provides empirical data from three semi-structured interviews with corporate executives at two South African food retailers: Pick 'n Pay and Woolworths Ltd. The interview with Woolworths Ltd took place in August 2010 in Cape Town and the two Pick n Pay interviews took place in December 2009 and January 2010 in Johannesburg and Cape Town respectively. The main aim of these interviews was to conduct a preliminary study to identify the constraints and enablers for building a resilient food system from the perspective of the private sector, which had not been done previously. Each interview was approximately an hour long and they were conducted so as to allow the interviewees freely to discuss issues of adaptation as well as the challenges and constraints on implementing the requisite change. The interviews were taped and then later transcribed. The qualitative data that resulted often referred to issues of uncertainty and complexity that business were facing in this sector and this justified the subsequent use of complex systems theory as a means to order the data. After a thorough analysis of the material, various themes were identified from the interviews, one of which was the process of collaboration between multiple stakeholders in order to address complex problems. This is described further below.

3.1. Partnerships as a form of self-organisation in response to climate change

A recent international phenomenon for developing creative solutions to impacts from environmental change has been the formation of partnerships between NGOs and businesses (Schilpzand et al 2010). In 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' (Pereira and Ruysenaar 2012). Despite the

problem of distinguishing between the effects of natural climatic variability and anthropogenic climate change, climate change has been recognized as a primary trigger for retailers to rethink procurement policies in South Africa as they have already experienced the impacts of a variable climate on procurement, particularly on stone fruit, peaches and nectarines that are major export commodities for South Africa (Pick n Pay Interview 2009). As part of this move towards internalizing environmental variability into their procurement strategies, retailers are also responding to the dual prerogative of creating a more environmentally sustainable business model as well as achieving social objectives in an unequal society with high rates of poverty and unemployment.

As a semi-arid country, water is the most obvious area around which to begin environmentally sustainable practices. As aptly put during the interview at Woolworths (August 2010), "If climate change is the shark, water is the teeth." Despite very good water and other environmental legislation in South Africa, there is very little enforcement (GWI 2011). Woolworths found that most of their suppliers were not even compliant with legislation – they have therefore emphasized wastewater management practices and reducing over-irrigation in their business strategy, but this has required them to work in collaboration with their farmer suppliers as the actors responsible for producing the produce (Woolworths interview 2010). Woolworths has also established the 'Farming for the Future' initiative, which aims to change farming in a shift towards more organic practices through educating farmers about exactly what inputs are required rather than relying on what the fertilizer or chemical suppliers say. It therefore involves direct collaboration with farmers, often through capacity building programmes that target previously disadvantaged groups.

"That's where it starts tying in with our food security side... basically we were finding that yields were starting to decrease, I mean for years and years people just [applied] more fertilizer and more chemicals and thought that was the solution for everything and it has proven not to be the case. So I think our bigger response is about changing farming practices to make sure that we have a more *resilient* food supply chain, hoping that will deal with some of the impacts of climate change and food security." (Woolworths interview 2010, my emphasis).

Although Woolworths admits that most of the work has been done with larger suppliers, there is discussion about trying to extend the programmes to include small-scale producers. However, there are a lot of challenges from the capacity perspective: from having access to sufficient resources to be able to finance the crops as well as putting up pack-houses and distribution networks. Sartorius and Kirsten (2004) found that although smallholders could compete with large-scale producers and be cost-effectively incorporated into modern retail chains, they generated a higher transaction cost and that this needed to be addressed in order for mass inclusion of smallholders into these supply chains. Woolworths' response to some of these challenges was to match small-scale producers with some key primary suppliers. In this sort of "buddy-system", the small-scale farmers have access to the infrastructure that is provided by the primary suppliers including pack-houses and trucks and are at the same time mentored and increasingly brought into discussions. However the benefit is not as direct as Woolworths initially foresaw the project would be and so there is a need to revisit and be flexible to the situation as it is on the ground and adapt programmes accordingly (Woolworths Interview 2010).

The procurement policies of retailers and their interventions therefore have a significant impact on the food system's capacity to adapt to future climate change and its concomitant uncertainty. This analysis also highlights the importance of active engagement between multiple stakeholders- from the farmers, wholesalers and retailers to governments and customers- in response to environmental and social challenges. However, there is a need to be cognizant of other direct and indirect impacts that this engagement can have because there are sometimes tensions between formal institutions and the more informal rules emerging from the system. For example, 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

commission² (Pick `n Pay interview 2010). This is especially relevant in light of accusation of collusion between bread companies around fixing the price of bread in 2008 (Pereira and Ruysenaar 2012). Bearing these tensions in mind is necessary when contemplating how processes of self-organisation and other CAS properties can be incorporated into adaptive governance structures that deal with change processes.

3. Conclusions

The South African case study showed that by forming connections between different actors involved in the food system, across different scales and levels, the food system `self-organizes' to build its resilience in response to social and environmental threats, often resulting from unsustainable farming practices. Problems can be tackled from a more holistic perspective by involving more actors and the result is that the solutions are less rigid and constrained, allowing for `adaptive governance'. Retailers' needs for a certain and safe supply, farmers' needs for a certain market to sell their produce and customers' needs for affordable and nutritious food are theoretically not at odds. Practically, however, this is not the case in the current food system- these needs must be aligned through an appreciation of the system's diversity. Furthermore, processes of self-organisation at national levels can also play out at lower levels and so the establishment of small, local retailers ('Mom and Pop stores') in poorer areas can be indicative of some of these larger, more inclusive trends (Pereira et al under review).

Larger trends of environmental change and globalisation provide the context in which the private sector has both the incentive and the capacity to develop adaptive business strategies that involve other actors within the system, most importantly producers- and in particular small-scale farmers who are the most vulnerable to double exposure threats. This has wider implications for the governance of these food systems and how these processes of self-organisation can be harnessed in order to achieve food security outcomes. The paper has shown that responding to changing circumstances in the food system with all its uncertainty and complexity requires a new means of understanding system processes and more specifically, recognising how a diversity of actors can organise into novel governance structures.

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² The competition commission is a legal body in South Africa responsible for investigating and prosecuting companies for non-competitive behaviour, e.g. price collusion.

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