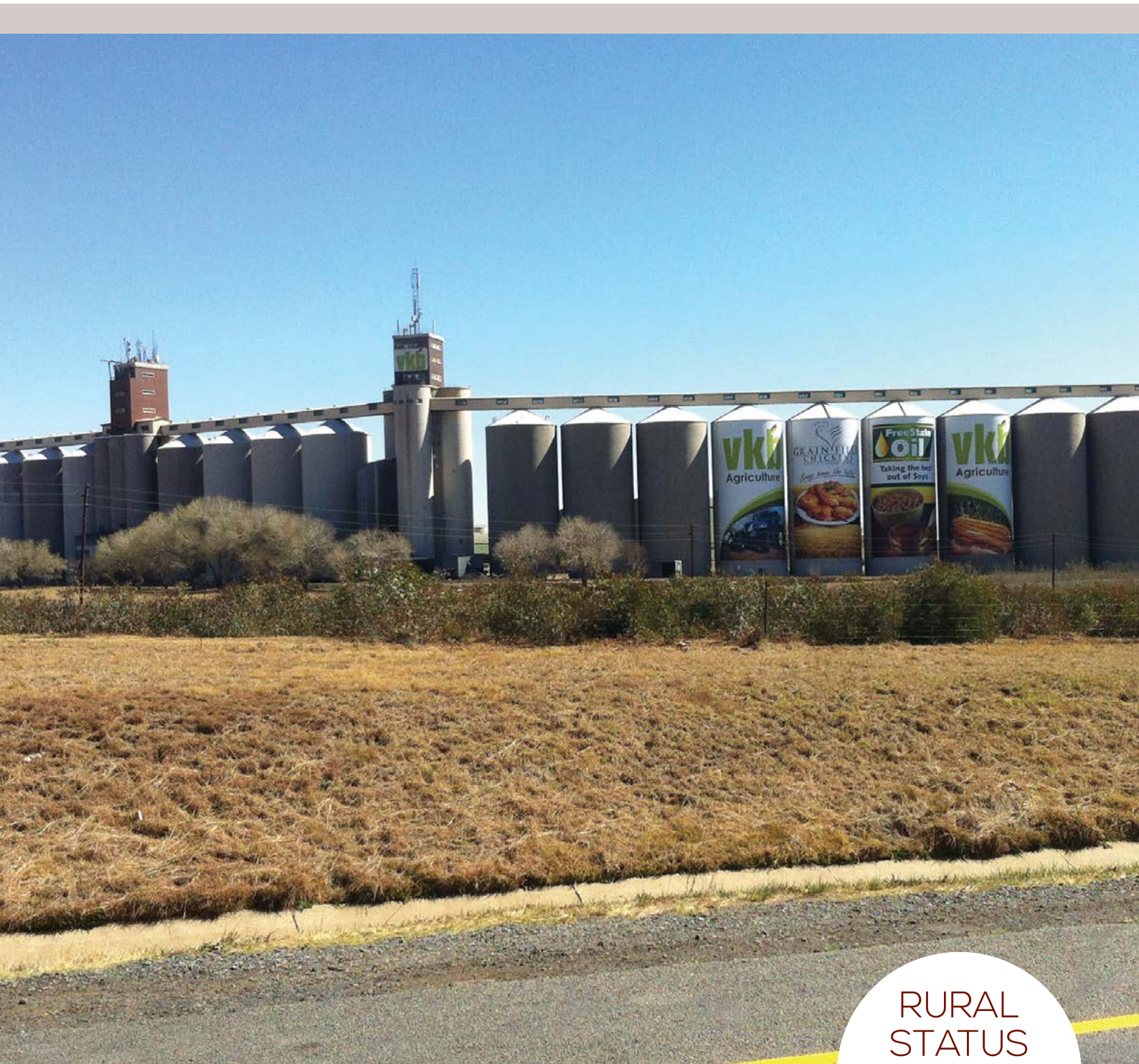


CORPORATE CONCENTRATION AND FOOD SECURITY IN SOUTH AFRICA: IS THE COMMERCIAL AGRO-FOOD SYSTEM DELIVERING?

STEPHEN GREENBERG



RURAL
STATUS
REPORT

1



UNIVERSITY of the
WESTERN CAPE

PLAAS 

Institute for Poverty, Land and Agrarian Studies
Faculty of Economic and Management Sciences

**CORPORATE
CONCENTRATION AND
FOOD SECURITY IN
SOUTH AFRICA:**
IS THE COMMERCIAL AGRO-
FOOD SYSTEM DELIVERING?

STEPHEN GREENBERG

RURAL
STATUS
REPORT

1

Published by the Institute for Poverty, Land and Agrarian Studies,
Faculty of Economic and Management Sciences
University of the Western Cape, Private Bag X17, Bellville 7535, Cape Town, South Africa.

Tel: +27 21 959 3733. **Fax:** +27 21 959 3732. **E-mail:** info@plaas.org.za

Website: www.plaas.org.za

Institute for Poverty, Land and Agrarian Studies Rural Status Report 1

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without prior permission from the publisher or the authors.

Corporate concentration and food security in South Africa: is the commercial agro-food system delivering?

May 2015

Written by: Stephen Greenberg

Series editor: Liz Sparg

Copy editor: Glynne Newlands

Proofreader: Joy Clack

Photographs by: Eric Miller and Stephen Greenberg

Design: Design for development, www.d4d.co.za

Printer: Hansa Digital and Litho Printers

Cover Photo: Stephen Greenberg

CONTENTS

Introduction	6
The South African agro-food system	7
The impact of colonialism and apartheid	7
Meeting food security requirements: is the agro-food system delivering?	11
Social justice in the agro-food system	14
Ecological sustainability	16
Trajectories of transformation	18
Endnotes	20
References	20

1. INTRODUCTION

Although the current agro-food system in South Africa has the technical and organisational capacity to meet domestic food needs, there are major problems with access to food and with the nutrient content of existing food supplies. The agro-food system is a product of apartheid and, as such, has social inequities built into it. This paper looks briefly at the main points of inequity and reflects on various attempts and proposals to alter the system to reduce social inequity.

The agro-food system is a product of apartheid and, as such, has social inequities built into it.

The South African agro-food system is built on Green Revolution production technologies and industrial systems of manufacturing and distribution. The Green Revolution relies on a package of technologies including 'improved' and hybrid seed, synthetic fertiliser, irrigation, consolidation of land, credit and increased access to formal markets. In some places in South Africa, this agro-food system is reaching ecological limits (e.g. global temperature limitations related to climate change, soil damage and degradation without an alternative nutrient source, and shortages of non-salt water) that contribute to wider ecological crises, and it may begin to pose a threat to the long-term sustainability of the food supply. The challenge facing regulators, governors and policymakers is how to formulate and implement a transformation process that can lead to a socially just and ecologically sustainable system, while minimising disruption to the food supply.

This paper looks at the strengths and weaknesses of the current agro-food system, and considers alternatives.

DEFINITIONS

Green Revolution:

The Green Revolution relies on a package of technologies including 'improved' and hybrid seed, synthetic fertiliser, irrigation, consolidation of land, credit and increased access to formal markets.

Agro-food system:

An agro-food system can be considered as the 'set of activities which combine to make and distribute agri-food products, and consequently act to meet human nutrition needs in a particular society' (FAO, 2009:16). The concept can be applied on any scale, from local food systems (Feagan, 2007) to global agro-food regimes (Friedman & McMichael, 1989). The agro-food system is thus dynamic, complex and conceptually specific.

Some key aspects of the South African agro-food system include:

- economic concentration among corporations
- expansion across national borders
- a 'nutritional transition' (changes in food consumption habits) accompanying urbanisation and producing a change in diets
- the increasing importance of global ecological challenges, such as climate change and water shortages
- efforts by the South African government to transform the agro-food system towards greater equity, including land reform, black farmer support and black economic empowerment (BEE).

2. THE SOUTH AFRICAN AGRO-FOOD SYSTEM

An agro-food system can be considered as the 'set of activities which combine to make and distribute agri-food products, and consequently act to meet human nutrition needs in a particular society' (FAO, 2009:16). The concept can be applied on any scale, from local food systems (Feagan, 2007) to global agro-food

regimes (Friedmann & McMichael, 1989). The agro-food system is thus dynamic, complex and contextually specific.

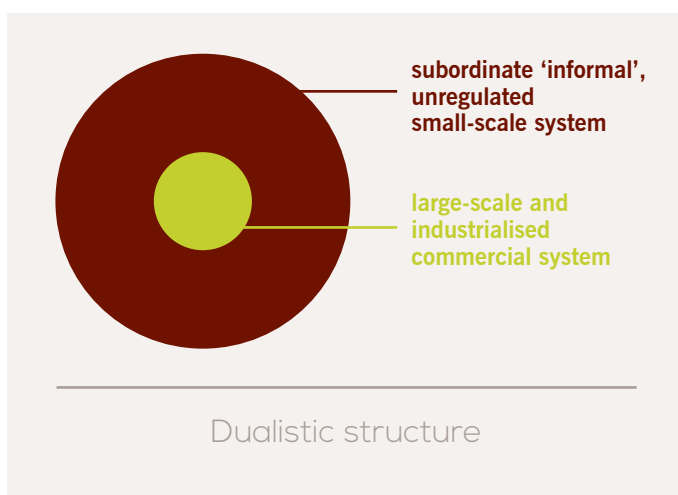
This paper focuses on the agro-food system at the national level but with inevitable links to regional, continental and global dynamics, as well as to localities and households.

3. THE IMPACT OF COLONIALISM AND APARTHEID

The first issue we encounter in South Africa is the apparently dualistic structure of the agro-food system, with a regulated, large-scale and industrialised commercial system dominating production and distribution, and a subordinate 'informal', unregulated small-scale system operating on the peripheries of the formal economy. This structure was historically racialised, with whites dominating the formal system and the black population creating the so-called informal system out of necessity for survival.

Pre-colonial systems of provisioning and social networks form the base of informal systems of food production and circulation, but wage labour and urbanisation disrupted these previous systems. Generally, the formal system poorly served black populations in the Bantustans (homelands) and townships. Trade was restricted in these areas where most of the black population lived.

The formal distribution system did not penetrate deep into the townships or Bantustans, partly as a result of legal restrictions on trade and partly as a result of uncertain markets. In urban areas



DEFINITIONS

Deregulation:

Deregulation means a reduction in state regulation of private interests in agro-food production and distribution.

Liberalisation:

Liberalisation means an opening up of the economy and trade, in particular, to market forces.

and commercial farmlands, black consumers ended up buying a large share of their food from white-owned shops situated outside their residential areas. According to apartheid theory, people living in the Bantustans would be able to produce their own food needs from the land. The large base of sub-subsistence production in the former Bantustan areas (i.e. producing only enough to meet a small part of household needs) is a legacy of the policies that flowed from this theory. Informal systems of food procurement and distribution filled the vacuum created by apartheid failures to deliver adequate food to black areas, urban and rural alike.

Deregulation and liberalisation of the agro-food system

The history of deregulation and liberalisation of the South African agro-food system, culminating in the Marketing of Agricultural Products Act of 1996, has been covered elsewhere (e.g. Bernstein, 1996; Bayley, 2000; Greenberg, 2010). Deregulation means a reduction in state regulation of private interests in agro-food production and distribution. Liberalisation means an opening up

of the economy and trade, in particular, to market forces. Coupled with wider global systemic and technological changes (Baker & Da Silva, 2008), this deregulation contributed to the disintegration of the boundaries between formal and informal systems in South Africa. Informal traders were able to acquire goods directly from wholesalers nearby. As legal and regulatory restrictions on trade were lifted and the potential commercial value of mass markets in the townships and concentrated settlements in the former Bantustans grew, companies expanded into these areas throughout the system. Corporatised and privatised co-operatives established retail outlets to supply inputs to primary producers in the former Bantustans. Supermarkets and wholesalers expanded their operations into black residential areas, especially after 1998 when the cash injections from social grants increased demand for consumer goods, including food.

Smaller, decentralised processors became more numerous in some sectors (e.g. abattoirs, maize milling). But, overall, deregulation favoured large, established interests and corporate concentration and direct expansion into black markets (Bernstein, 2013). Assessing the equity effects of deregulation and liberalisation, Vink & Kirsten (2002:viii) concluded that 'the evidence generally is that the "losers" from deregulation and liberalisation are mainly low-income earners in urban and semi-urban areas, smallholder farmers in remote areas and unskilled farm workers'.

Value chains and the agro-food system

The concept of value chains (Gereffi & Korzeniewicz, 1994) is useful in looking at the specifics of different commodities and the power dynamics between different nodes in the chain. Value chains are commodity specific and complex, and are dynamic in time and space.

Chain governance is carried out by a combination of public and private sector actors, and implies co-ordination of the different activities in the chain but also the power to influence the distribution of value added in the chain. Cousins (forthcoming) refers to tight and loose value chains, with the former based on formal contracts and the latter on informal agreements of exchange between buyers and sellers, although regulatory informality is not restricted to loose chains.

Deregulation and value chains

Under apartheid, value chains were mostly managed and regulated in favour of primary producers and processors, essentially giving power to the producer over the buyer. The farmer-owned co-operatives and the commodity control boards played key roles in implementing various statutory and single-channel marketing systems, price floors (with the state as a guaranteed buyer of last resort) and other interventions designed to secure the power of producers and processors (World Bank, 1994; Bayley, 2000). A fundamental result of deregulation and technological changes was a shift in power to buyers. Large food

DEFINITIONS

Price takers:

Price takers are forced to accept the prices they are offered.

Price setters:

Price setters are able to dictate the prices they are willing to pay.

Financialisation:

Financialisation is a process whereby financial markets, financial institutions and financial elites gain greater influence over economic policy and economic outcomes. Financialisation transforms the functioning of economic systems at all levels.

manufacturers, processors and corporatised co-operatives, over which farmers lost control, exerted market power over primary producers, whose own power decreased rapidly after 1994. But retailers, who were price takers in the regulated system, were the major beneficiaries of deregulation and became price setters. Price takers are forced to accept the prices they are offered, whereas price setters are able to dictate the prices they are willing to pay. This sparked a process of rapid consolidation and concentration in food retailing. The shift in power relations from producer to buyer took place across agro-food commodities.

Although individual commodity chains may be analysed as stand-alone systems of linked production and distribution, they are interconnected, both between chains and into the broader economy. An example of an inter-chain connection is what might be considered a 'maize-livestock complex' at the heart of the South African agro-food system.

The maize and livestock chains are tightly interconnected, to the extent that livestock may be considered commercially as a mechanism for the value addition of maize. Connections into the broader economy include input supply (including synthetic fertiliser, with a strong connection to the chemicals industry, seed, credit and other production inputs) and outputs (produce for use and sale), with links into industrial manufacturing and transport, not to mention retailing. So the chains are interlinked and feed into a wide array of output markets.

In reality, value chains are very complex systems that are not linear in the way a simple model suggests: constant turnover of production means products are continuously at different stages in the chain; local, domestic and export markets all function simultaneously with varying cost structures, systems of governance and input and output dynamics, and there are varying levels

of formality or informality in any given chain. The agro-food system is the combination of all these various chains, from input supply to the end consumer, interlinking chains and upstream and downstream links into the broader economy. But it also encompasses all these activities outside formally regulated and governed value chains, where the extent of corporate presence varies from node to node.

Financialisation and corporate power in the agro-food system

Financialisation is a process whereby financial markets, financial institutions and financial elites gain greater influence over economic policy and economic outcomes. Financialisation transforms the functioning of economic systems at all levels.

The table at the end of the paper provides an overview of important parts of the agro-food system as it currently stands. It reveals some highly concentrated sectors (especially in input supply) but also shows a fairly large base of smaller enterprises, especially in primary production, agro-processing and distribution/retailing. As corporate power has expanded in the agro-food system, so has financialisation throughout the system.

There are two sides to financialisation for corporate agribusiness: first, financial institutions increasingly own and control productive assets; and second, a greater share of agribusiness profits comes from financial activities rather than from productive activities (Isakson, 2013). In South Africa, the biggest corporations exhibit high levels of institutional ownership, including global institutions

DEFINITIONS

Futures markets:

Futures markets allow buyers and sellers to agree on prices for a later date of delivery and are meant to help with risk management. The futures can be traded. Financial deregulation has seen the entry of institutions that do not have a material interest in the underlying agricultural commodities into agricultural futures markets.

Volatility:

Volatility means greater and less predictable fluctuations in prices, making it more difficult for those interested in the production and sale of agricultural commodities to plan their productive activities.

and local institutions such as the Government Employee Pension Fund (GEPF), the Public Investment Corporation (PIC), financial institutions and investment funds, and other private entities of which Remgro and PSG/Zeder deserve greater attention. Institutions control some of the largest companies in the agro-food system, including AECL, Afgri, Astral Foods, Astrapak, AVI, Bidvest, Imperial, Omnia, Sasol, Sovereign Food, Spur, Super Group, Tiger Brands, Tongaat Hulett and Woolworths (McGregor's, 2012).

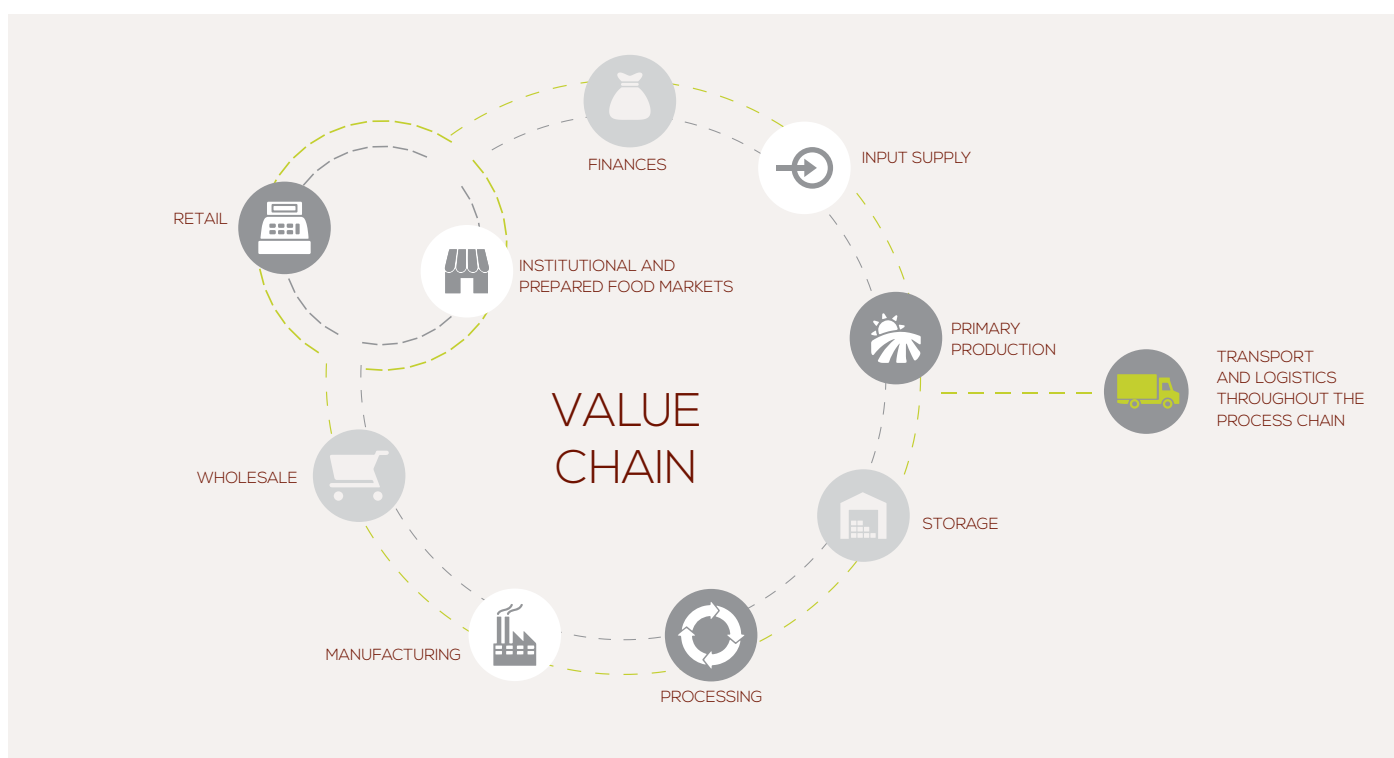


FIG. 1 A value-chain approach breaks the agro-food system into nodes through which a product passes and where value is added.

To some extent, rising institutional shareholding spreads the concentration of ownership, but financial institutions have a lot of influence over agribusiness management decisions. They favour consistent and often high returns to investors, sometimes demanding up to 25–30% annual returns (Isakson, 2013). The expansion of futures markets has increased speculation in food commodities, certainly contributing directly to food price rises in South Africa in 2002 (NAMC, 2008). Futures markets allow buyers and sellers to agree on prices for a later date of delivery and are meant to help with risk management. The futures can be traded. Financial deregulation has seen the entry of institutions that do not have a material interest in the underlying agricultural commodities into agricultural futures markets. This includes agribusinesses, who receive a greater share of their income from the proceeds of derivatives, securities and commodity futures trading. These are financial tools that commodify and trade risk and future income. Given the large holdings by institutional investors and index funds in commodities futures, their behaviour drives market prices and increases volatility (UNCTAD, 2009). Volatility means greater and less predictable fluctuations in prices, making it more difficult for those interested in the production and sale of agricultural commodities to plan their productive activities.

Large-scale commercial core and smaller enterprises in the agro-food system

Although the large-scale commercial sector is dominant in the agro-food system, there are many thousands of smaller enterprises operating at the same time, either in parallel with the commercial core or in some way connected to this core as suppliers or purchasers. The commercial core is a small number of very large corporate entities that produce most of the marketed food in circulation. Even where the commercial sphere dominates the core, smaller enterprises continue to function on the outskirts, especially in local markets. This includes thousands of small agro-processing as well as food retail and trading enterprises. Agro-processing adds value to primary agricultural products through processing or manufacturing them into something else as a raw material input. This includes food and fibre, and can include grading and packaging, as well as manufacture of processed foods. Those outside the corporate core are on a continuum from large-scale white commercial family farmers to small backyard patches. To the extent they do not feed directly into formal, regulated markets, they are discounted.

In retail, for example, where the five big food retailers dominate, there were an estimated 400 000 hawkers and spaza shops in the mid-2000s (Ligthelm, 2006) – hundreds or even thousands per district – that play a critical role in distributing food where it is needed, even if they often are a channel for corporate products. Wills (2009:3) indicates 500 000 street vendors were active in 2007, of whom 72% were women. Most people access food from both the formal and informal systems, so these are complementary



rather than exclusive (Crush & Frayne, 2010). The ‘relatively high density of informal and independent food retail channels contribute to a field of choice’ (Aliber & Mdoda, 2014) for poor consumers.

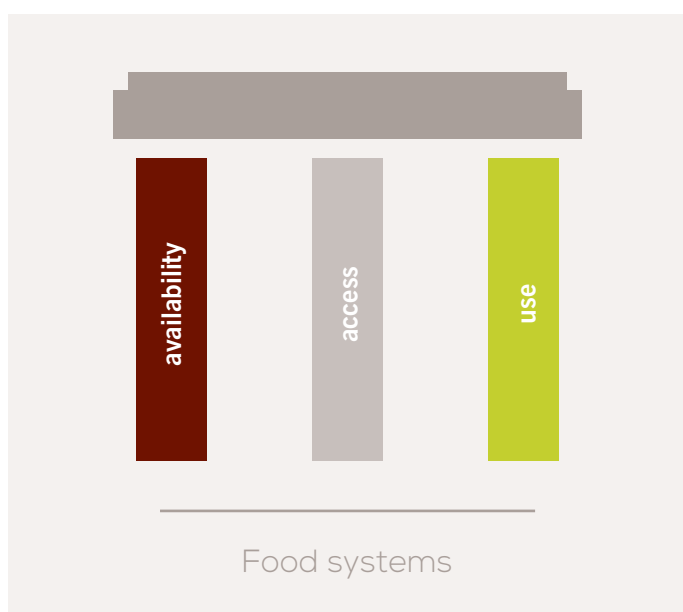
A tenth of food retail expenditure, more than a quarter of alcoholic beverage expenditure and more than a fifth of cigarette and tobacco expenditure came from the informal sector in 2004 (Ligthelm, 2006a:42). Hawkers and street markets accounted for 20% of household expenditure in the informal economy, spaza shops 17% and shebeens 8% (Ligthelm, 2006b:43). Hawkers generated an estimated employment of 415 000 and spaza shops 320 300 (Ligthelm, 2006b:45).

Primary agricultural production retains a broad base, although it is shrinking in commercial production, and a small core dominates production. Inclusion of black producers on any scale changes the picture substantially and suggests the possible consolidation of a larger surplus-producing base. According to statistics derived from Stats SA, around 2.5 million black households were engaged in agriculture in 2007 (Aliber, 2009:42). Most of this production (about 85%) was as an extra source of household food or income, with another 4–5% as the main source of household food. Thus partial subsistence agriculture is predominant, with less than 5% of these producers farming as their main source of income (Aliber, 2009:38).

In 2011, homeland farmers' share of field crops was estimated at just 3–4% of the national total (Liebenberg, 2013:55). However, other calculations based on national statistics show that black farming households produce value of up to R13 billion per year, most of which is used within the household and therefore is not counted in agricultural statistics. This is almost a quarter of the value added in commercial agriculture in 2013. In addition, evidence suggests that yields are similar in communal and commercial farming areas, and that the small share of national production from black farmers has a lot to do with the unequal distribution of land (Aliber & Mdoda, 2014).



4. MEETING FOOD SECURITY REQUIREMENTS: IS THE AGRO-FOOD SYSTEM DELIVERING?



The 1996 World Food Summit defined food security as the situation 'when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life' (FAO, 1996). The three main pillars to consider are availability, access and use.

Availability refers to food production, and essentially considers whether enough food is being produced to meet the needs of the population. Availability, therefore, refers to the production system.

Access refers to entitlement to a share of the available food; 'the ability of people to command food through the legal means available in the society' (Sen, 1981:45). The entitlement approach

considers individuals' entitlement to commodity bundles that include food; starvation or malnutrition results from failure to be entitled to a bundle with enough or appropriate food. Sen's focus is on the legal channels for accessing food and thus relates directly to the right to food. However, informal customs and norms contribute to access to food, including welfare, charity and solidarity. Access, therefore, refers to distribution of food. Entitlements and access to food includes cultural norms that may prevent an individual from gaining access to the appropriate nutrient requirements for a healthy life. This has a gendered aspect; for example, cultural norms that define who has first access to available food, or what kind of food is prepared and eaten.

The third pillar of food security is use, and is closely associated with health and nutrition. It is possible that people are entitled to enough food but that they are physiologically unable to absorb the nutrients effectively. This is a question of physical and mental health. Of course these must be clearly defined, but it is clear that lack of nutrition leads to a lower potential to contribute socially. The quality of food is a critical factor for efficient use, because even if a person is entitled to enough food for survival, the food may not be nutritionally adequate. This is a serious concern in South Africa, as we shall see below. In these food security terms, is the South African agro-food system delivering?

Food production and availability

The dominant argument in South Africa is that the agro-food system, built on the spine of large-scale commercial production, can meet market demand and also expand if that demand expands. The African National Congress (ANC) adopted this approach after 1994. The ruling party opted for economic continuity and

stimulation of demand, primarily in the form of social grants. The national food self-sufficiency index shows that South Africa is self-sufficient, or nearly so, in almost all major food products, and is able to import shortages when necessary (DAFF, 2011:5). The index is fairly consistent over the period 1980 to 2010. Despite sharp fluctuations in production of citrus fruit and a gradual decline in sugar production, in both cases they are well above the self-sufficiency mark.

But overall the production performance of the commercial agricultural system has been somewhat uneven. Vink & Van Rooyen (2009) indicate:

- gross farm income from commercial agriculture expanded more than twofold in nominal terms between 1970 and 2006, although real net farm income (NFI) remained the same – this indicates rising input costs without commensurate output price rises
- a lack of growth in physical production per capita since the mid-1990s (it was declining before then, meaning production was not keeping up with population growth; now it is keeping up, but no more than that)
- a growth in the share of horticultural production, mainly at the expense of field crops
- an increase in the share of processed to unprocessed products in the export mix
- a faster growth in agricultural imports than exports, with a gradually declining trade balance; but which still generate enough foreign exchange to cover agro-food imports for the time being
- a relatively stagnant rate of investment
- a sharp drop in employment in commercial agriculture.

This indicates a commercial sector that is maintaining production, but is not performing exceptionally and is stagnating in some areas.

Food waste

National food production statistics indicate what is produced by farms each year. But it does not deal with the question of food waste, which is of critical concern globally. Stuart (2009:302–303) estimates that fully one-third of world food supplies are wasted, either through inefficiently feeding surpluses to animals, producing waste in the supply chain or eating more food than needed. Apart from the moral questions this poses, if food waste was halved, greenhouse gas emissions could be cut by 5% or more.

South Africa is not exempt. Suzan Oelofse at the Centre for Scientific and Industrial Research (CSIR) estimates that nine million tons of local production is wasted every year, equivalent to 31.4% of average annual production. An additional 1.2 million tons are wasted if trade is taken into account (Oelofse, 2013:3).



The cost of this food waste is R61.5 billion, equivalent to 2.1% of South Africa's Gross Domestic Product (GDP), and these costs are only based on prevailing market prices and do not include disposal costs (Oelofse, 2013:6). Fruit and vegetables account for 44% of waste and cereals for 26% of waste by volume (Oelofse, 2013:8). Over half of production of fruit and vegetables is wasted every year, while almost a fifth of all cereal production is wasted (Oelofse & Nahman, 2012:15). Fruit and vegetables, meat and seafood are the sectors where the lost value from waste is the highest. For fruit and vegetables, most waste occurs in processing and packaging and then in distribution (R14 billion in 2012); for meat, distribution and agricultural production account for around R12 billion of losses, and in seafood, distribution is the major area of waste (Oelofse, 2013:7).

Access to food

The food self-sufficiency index is based on farm production and consumption is based on 'effective demand'. In other words, it is a measure of the formal market that is structured through state regulations and is incorporated into the company and tax system. It only considers purchasing power measured through formal means. It does not include an accurate measure of the value of self-sufficiency, which is not circulated through formal markets. But from the food waste figures it is clear that the amount of food produced on farms is not the amount that finally reaches the plate of the end user. Likewise, measuring consumption on the basis of actual purchases ignores hidden demand, where people do not have enough money to buy enough food; or from a rights point of view, where an adequate amount of food is not included in their entitlement bundle.

Access to available food is uneven. Social grants and other food security measures, such as school feeding schemes, have contributed to reducing the number of people who experience hunger sometimes, often or always (DAFF, 2011). Nevertheless, anywhere between 18% (DAFF, 2011) and 35% (Kirsten, 2012) of the population continue to experience hunger, with rural

populations more food insecure than urban populations. This is a problem of entitlement failure, in Amartya Sen's terms. Two possible reasons for lack of access to food are that:

- people do not have the resources to purchase or grow their own food
- distribution channels are not reaching everybody.

Concentrated agro-food markets, especially in retail (Vink & Kirsten, 2002), have led to higher food prices because large corporations can exert material force on the shaping of supply chains in their interests, including 'asymmetrical price transmission', where cost increases are passed onto consumers as higher prices, but cost decreases are not (Cutts & Kirsten, 2006). This allows them to take a greater share of value in the chain. There are ongoing concerns about profiteering in the agro-food system. The Competition Commission found companies guilty of collusion and price manipulation in fertiliser, grain storage and bread. The Commission also conducted preliminary investigations into food retailing, although these were not taken forward into formal charges.

Hunger is a result of large-scale structural unemployment, not simply price.

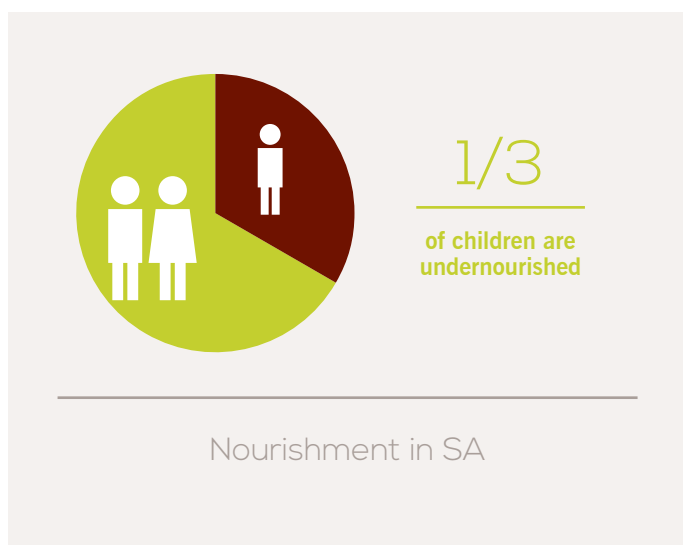
Since 2008 it appears we have entered a period of structurally higher prices globally (Timmer, 2008). Rapidly escalating commodity prices before the 2008 crash have declined, but food prices have remained high. The United Nations (UN) predicts that food prices as a whole will rise at least 40% in the next decade (Vidal, 2011). The US Department of Agriculture (USDA), wealthy countries and the UN Food and Agriculture Organisation (OECD-FAO) predict that global wheat and grain prices will be 30–60% higher in the following decade than they were during the period 2002–2007 when commodity prices were booming (Headey et

al., 2009:17). Even after the crash, investment continues in food production. Given the close tracking of South African staple food prices (maize, wheat, poultry) to global commodity prices, we may expect the same in South Africa. Nevertheless, people would be hungry even if prices were low. Hunger is a result of large-scale structural unemployment, not simply price.

Quality and use

The third aspect of food security, the use of food, incorporates nutrition. The way food is produced and distributed influences its nutritional qualities and content. Malnutrition incorporates all cases where there are not enough appropriate nutrients in the diet, including hunger from too few nutrients as a whole, or obesity, diabetes and other diet-related illnesses from too much of some nutrients and too little of others, especially micronutrients. Malnutrition is a complex issue and is affected by cultural preferences, available food choices, aspiration, status and desire, as well as the economics of distributing and storing large quantities of food products for urbanised societies.

From a nutritional point of view, there is cause for concern. At the end of the 1990s, one in five children nationwide were stunted by the time they reached their fifth birthday (Labadarios et al., 2000). There do not seem to be more updated figures. 'Nutrition-related underdevelopment in the young central nervous system in the first 24 months of a child's life is linked to underperformance in school and a decreased IQ in later life' (Joubert, 2012:34). Vitamin A, iodine and iron are the three main micronutrients which, when they are in short supply, lead to 'growth retardation, brain damage, diminished cognitive function and diminished working capacity in children and adults' (Joubert, 2012:34). Children are getting less than half the recommended calories, as well as key micronutrients (calcium; iron; zinc; selenium; vitamins A, D, C, E; riboflavin; niacin; folic acid and vitamin B6) (Joubert, 2012:36).



By 2020 'chronic non-communicable diseases will be responsible for two-thirds of all premature deaths and years lived in less than optimal health [referring to whole world]. And most of these will be "strongly associated with diet".'

Joubert, 2012: 148

High levels of underweight and nutritional deficiencies exist in parallel to overweight and obesity in adults and children. In South Africa, while nearly a third of all children are undernourished, 55% of adults are either overweight or obese, and urban children are

twice as likely to be overweight than their rural counterparts. Much of the obesity we see around us is part of the same continuum of poverty and food insecurity as the infant born below the critical 2 500g birth weight (Joubert, 2012:74). In 2000, 7% of deaths in South Africa were linked to excess body weight, and in 2004, 12% of the 'overall disease burden' was related to dietary intake and respiratory diseases.

South Africa is in a 'nutritional transition' (Popkin, 1993) from traditional diets high in cereal and fibre to Western diets high in sugar, fat and animal-source products. Dietary patterns are shifting towards more fats, and more packaged and processed foods with high levels of salt, sugar and fats (Igumbor et al., 2012). Processed foods generate higher returns than whole foods, and are more amenable to standardisation (and thus mass production) and longer shelf life.

Maize, South Africa's staple diet, is stripped of its nutritional qualities, leaving mostly just protein and starch (Joubert, 2012:68). Leonie Joubert argues that while processed grains may be providing some of the major macronutrients (fat, protein and carbohydrates) and fill people, they are not providing the micronutrients we need. By 2020 chronic non-communicable diseases will be responsible for two-thirds of all premature deaths and years lived in less than optimal health [referring to whole world]. And most of these will be "strongly associated with diet" (Joubert, 2012:148). The concentrated corporate food structure enhances the tendency towards processed, less nutritional food

at the cost of whole foods and nutritional diversity. Although supermarkets carry fresh fruit and vegetables, their commercial survival depends on trade in processed and packaged foods, and fresh and frozen meat (Joubert, 2012). This raises questions about what quality standards are being set by supermarkets, for what purpose and how they may be related to nutrient content. Advertising is closely associated with promoting processed and packaged foods, and it narrows cultural diversity, encouraging uniformity amid apparent choice. Prepared foods or food with a longer shelf life are more convenient because they do not need water, cooking or special storage (e.g. refrigerators) (Joubert, 2012). Producing and consuming indigenous crops is left to ever-smaller zones in deep rural areas, while supermarket expansion into townships and rural areas offers processed food as an easier alternative. Food retailers are driving quality standards but in the context of a 'cheap food' economy, consumers may want good quality food but can only afford cheap food (Rowbotham, 1998).

Because of its promotion of processed foods, South Africa's agro-food system is not meeting the needs of large numbers of people. But the story doesn't end there. To compound the challenges, South Africa is also confronted with a socially unjust system and growing ecological concerns about the large-scale, Green Revolution production model being followed. A transition to a more appropriate agro-food system that is able to meet the needs of all must simultaneously accomplish a change of direction towards meeting nutritional needs, social justice and ecological sustainability.

5. SOCIAL JUSTICE IN THE AGRO-FOOD SYSTEM

The main critique of food security comes from food sovereignty advocates. Food sovereignty is a concept of a democratic, producer-controlled agro-food system, heavily popularised through the work of La Via Campesina (LVC, the International Peasant's Movement) globally. As the name suggests, supporters consider farmers and producers to be custodians of agricultural land and they should have the right to define what they produce and how they produce it. There are some critiques of this position but it has wide support from forces opposed to industrial-scale commercial agriculture.

Food sovereignty considers that food security is limited to only one aspect of the agro-food system – the practical concern with getting food to people. Critics of food sovereignty in turn ask whether its proponents are able to organise the technical aspects of production and distribution to large non-farming populations. But there is also a power dynamic, where large financial and corporate interests, linked closely to state elites, define the terms of agro-food investment and select technologies that reinforce their power and control over resources. Therefore technology is not entirely neutral, even though it can be used

in different ways. The pathways of development (Leach et al., 2007) shape the technologies. For example, hybrid seed may increase yields for farmers but it comes at the cost of increased payments for inputs, costs of irrigation and other equipment to realise the potential of the seed, and efforts to secure markets to recoup the expenses. The technical methods of seed research and development may have great validity but they are put to use for private interest by those who own and control them. Intellectual property protection is the latest manifestation of this.

Technical capacity to meet food needs

Technical capacity to meet food needs must be a basic starting point. Alternatives have to be built within the space of existing technologies and systems of production and distribution, rather than disruption without alternatives in place. However, while the ANC-led government has adopted the idea of the (current) inevitability of the corporate food system and the need to retain existing technical capacity, it does not propose creating alternatives, with a clear agenda or time frame. Either by design or because

DEFINITIONS

Food sovereignty:

Food sovereignty is a concept of a democratic, producer-controlled agro-food system, heavily popularised through the work of La Via Campesina (LVC, the International Peasant's Movement) globally. As the name suggests, supporters consider farmers and producers to be custodians of agricultural land and they should have the right to define what they produce and how they produce it. There are some critiques of this position but it has wide support from forces opposed to industrial-scale commercial agriculture.

Populism:

Populism might be defined as i) a demand for material and social equality without a clearly defined practical plan for how to get there; and ii) mobilisation without a clear principle of democratic and collective decision making.

of the pressures of governance, the ANC has practically provided material support for expanding and entrenching a corporate system. To function, the corporatised market system relies on state resources – including subsidies, access to technical facilities and expertise, and favourable policies for private investment. In this development pathway, public resources entrench a system of production and distribution built on social injustice at the expense of alternatives. Social justice is a principle of any progressive project. But justice itself is a contested term, and comes in different types (Du Toit, 2014).

In this development pathway, public resources entrench a system of production and distribution built on social injustice at the expense of alternatives.

Principles for progressive transformation

This can, and has, opened the door to populism, which might be defined as i) a demand for material and social equality without a clearly defined practical plan for how to get there; and ii) mobilisation without a clear principle of democratic and collective decision making. The task is to establish a definite set of principles on which to realise a fair distribution of both economic assets and of the various products of human endeavour. Principles for progressive transformation might include:

- widening the base of democratic control over economic assets
- collective democratic decision making, decentralised wherever possible

- political and social plurality (an 'open marketplace' of ideas and cultures)
- solidarity
- co-operation
- shared social and physical technologies
- social justice and socio-ecological sustainability.

Food sovereignty

While the baseline of enough nutritious food for every individual holds, food sovereignty proponents argue that food security should not only be about available nutritious food, but also about who owns and controls the food system, and the socio-ecological impacts of food production. In addition, we should consider the extent to which the agro-food system meets the requirements of cultural diversity. The socio-ecological and political power aspects added by the food sovereignty concept point us to these questions:

- Does the agro-food system, and associated governance and support mechanisms, tend towards widening or narrowing economic participation?
- On what terms does participation take place?
- Does the agro-food system enhance or diminish social equity and justice?
- Are the systems of production and distribution ecologically sustainable?

A 'missing middle' of commercial small-scale farmers remains, despite the various initiatives to fill this gap.

Aliber & Hall, 2010

Economies of scale

Economies of scale drive investment in the corporate-dominated agro-food system and create barriers to entry for smaller producers anywhere in the value chain. While smaller producers exist, as indicated above, they are kept on the margins. A 'missing middle' of commercial small-scale farmers remains, despite the various initiatives to fill this gap (Aliber & Hall, 2010). Restructuring has cut the number of jobs in primary agricultural production to historic lows, with many of the jobs simply providing casual or seasonal work (DAFF, 2010). Conditions for farm workers remain poor and insecure, and, despite recent increases, wages are still inadequate to meet the nutritional needs of farm worker households (BFAP, 2012). 'The drying up of the small, local food sector in the face of the supermarket giants results in the decline in healthy food and the marginalisation of the poor in relation to food... For poor urban entrepreneurs, the opportunities to get food at wholesale prices from centralised markets, and to compete with the large retailers, are restricted, reducing their business reach and income potential' (Joubert, 2012:174).

Land reform and AgriBEE – do they meet the criteria for progressive transformation?

The South African government has two main interventions to address social inequity in the agro-food system: land reform and AgriBEE. To what extent do these two approaches meet or fall short of the criteria for progressive transformation?

Land reform does seek to widen the land-ownership base as an economic asset, but it is driven from the top with limited active democratic participation in the process. Institutions for democratic collective ownership and decision making, such as Communal Property Associations (CPAs), are catered for in policy and even promoted, but they do not receive adequate support in turning the model into a widespread transformation of ownership and control over land (PLAAS, 2014). These associations have problems with an enforced business orientation. Land reform policies and farmer support remain rooted in a large-scale commercial mindset (Hebinck et al., 2011). No support is given for settlement of the land or for different ways of producing (Hall, 2009), which entrenches corporate technologies and pathways of development.



In the context of an increasingly concentrated agro-food system, government has chosen to adopt a contract farming model using value chain financing through public-private partnerships (DRDLR, 2013). This model will provide dedicated support in integrating a small number of black commercial farmers into existing commercial supply chains. Government's AgriBEE initiative (DTI, 2008) focuses on ownership, management control, skills development, enterprise and supplier development, and a small part of socio-economic development. AgriBEE may contribute to redistributing control over economic assets, but it remains within the framework of capitalist organisational and decision-making structures: undemocratic, profit-driven, fundamentally based on exploitation and privatised. The AgriBEE Charter is also voluntary for those not seeking public contracts, so few enterprises have determined their scores or obtained scorecards.

Those who have registered for AgriBEE accreditation favour skills development, enterprise and supplier development, and then socio-economic development as their primary focus areas for transformation (AgBiz, 2014). They have thus chosen areas that can strengthen the existing ownership model rather than changing ownership. As with the contract farming model that government favours, integrating black farmers in the AgriBEE framework mostly takes the form of financing value chains and technical support to farmers, reaching only a few producers and potentially raising questions around sustainability when grant financing comes to an end. The economic agenda is being driven by agribusinesses who understand the political necessity of including black farmers and who are designing interventions that reproduce the concentrated, corporate structure of the contemporary agro-food system. So, policymakers continue to assume that a superior and desirable food system involves large-scale, capital-intensive, commercial farming, tightly integrated into the corporate food system.

6. ECOLOGICAL SUSTAINABILITY

Ecologically, commercial agriculture involves monocropping (repetitive production of a single crop on the same land) and relies on irrigation, synthetic fertilisers and agrochemicals. This model is also used as the basis for support to black farmers. Factors contributing to 'severe threat of degradation' of South Africa's natural resources include intensive tillage and limited crop rotation in commercial agriculture, and inappropriate land use and overgrazing in communal areas (Vink & Van Rooyen, 2009:23–24).

...factors contributing to 'severe threat of degradation' of South Africa's natural resources include intensive tillage and limited crop rotation ... and inappropriate land use and overgrazing...

These practices have reduced long-term soil fertility, caused soil erosion, polluted water supplies, poisoned fragile ecosystems,

exposed farmers and farm workers to toxins, and contributed to climate change through greenhouse gas emissions.

Threats to water supply

In 2000, irrigation used 63% of South Africa's available surface water and, in some areas, groundwater is being overexploited, leading to a drop in water tables (WWF, 2010). Irrigation builds up salts in the soil, leading to soil degradation. Water loss just from food waste is equivalent to nearly 22% of total water used for crop production (Oelofse, 2013:4). Water losses from waste is most serious for cereal production (32% of water is lost through food waste), then meat and fruit and vegetables, both accounting for around a quarter of water lost through food waste (Oelofse, 2013:10). Up to 75% of the commercial cattle herd in South Africa spends some time in intensive feedlots, which use up to 65 times more water than pasture-fed cattle (WWF, 2010).



Contribution to greenhouse gas emissions

The lack of properly managed animals on grasslands leads to degradation of grassland ecosystems which, along with forests, are an essential sink for carbon capture and storage. Thirty-four percent of South Africa's diverse ecosystems are currently under threat as a result of changes in the use of land, e.g. from forests to crop land, or agricultural land to industry or settlement (WWF, 2010). Agro-food systems as a whole contribute 19–29% of total human-produced greenhouse gas emissions, of which primary production accounts for 80–86% (Vermeulen et al., 2012). The major emitters in primary production are livestock (methane through enteric fermentation) and indirect nitrous oxide (N₂O) emissions from managed soils (i.e. tillage)². Disposal of organic waste (including food waste) in landfills is estimated to contribute 4.3% to South Africa's greenhouse gas emissions. A solution is to convert organic waste into biogas or compost (Oelofse & Nahman, 2012:5).

At the same time, agriculture and forestry provide a major sink for carbon dioxide (CO₂), so there are potential ecological benefits of

DEFINITIONS

Multi-functionality of agriculture:

The idea that land and agricultural production have multiple purposes that go beyond the immediate production of food. These include economic, social cohesion, landscape management and recognised and unrecognised ecosystem services (e.g. carbon sequestration and water management).

a properly managed agricultural system. Given the extent to which economies of scale drive investment in the agro-food system, new entrants are compelled to follow the established technological path to compete. Support to new farmers favours short-term financial viability rather than longer-term social, ecological and even economic sustainability, with unhealthy results for the agro-food system as a whole.

Multi-functionality at the farm level

The science of agro-ecology applies 'ecological concepts and principles to the design and sustainable management of agricultural ecosystems' (Altieri, 2009:102). From a primary production point of view, agro-ecology is increasingly recognised as essential to sustainable agro-food systems (IAASTD, 2009). Agro-ecology is the material basis for food sovereignty. Production techniques are needed to be socially just, ecologically sound and scientifically robust. Although some people challenge this idea (e.g. Smith-Spangler *et al.*, 2012), there is evidence that agro-ecological production generates food with greater nutritional quality (see, for example, Davis *et al.*, 2004; Baranski *et al.*, 2014).

Agro-ecology can be associated with the multi-functionality of agriculture, i.e. the idea that land and agricultural production have multiple purposes that go beyond the immediate production of food. These include economic, social cohesion, landscape management and recognised and unrecognised ecosystem services (e.g. carbon sequestration and water management). Although multi-functionality can be read in a productivist way (emphasising agricultural production), it is contested, including by the food sovereignty movement (Tilzey, 2006). One alternative is to consider multi-functionality at the farm level, where it can lead to 'tangible changes in the farmed landscape, agricultural-community interactions, and the quality of food and fibre production' (Wilson, 2008:369). Some plots or farms may become degraded to single-purpose pieces of land, and it is mostly the poor who

find themselves in this situation through lack of choice. Multi-functionality can support interested producers even at this level by adding functionalities to their activities, such as integrating livestock (chickens, goats or pigs) into their production systems, or adopting agro-ecological production techniques, thus improving soil and water quality.

Although the South African government has been developing an agro-ecology strategy for some years now, there is no strong political champion and it is on the margins of agricultural policy. Wilson's idea suggests, however, that radical multi-functionality and agro-ecology might best be located at the heart of the commercial production system as a way of moving towards ecological sustainability in the agro-food system. Shifting to agro-ecology as a mainstream approach will undoubtedly have consequences

as agro-food systems are localised and more disconnected from global commodity circuits. This could provide a shock, but if effective research and development, extension services and other agricultural support systems are put in place, it could be possible to shift onto an ecological path. The pockets of technical capacity are mostly in the service of the corporations, or are very small and isolated outside the corporate system. If we couple a production remodelling of this nature with the transfer of 80% of land outside the concentrated productive core in South Africa over twenty years, there are the makings of a social and ecological transformation with positive material results for the black rural population. A need exists for dialogue and alliances between urban and rural constituencies, to ensure co-ordinated production and distribution to where food is needed, including the cities. Government has a role to play in public procurement and distribution.

7. TRAJECTORIES OF TRANSFORMATION

What are the options open to consumers, workers and those in conditions of poverty? The answers we are looking for need to span complex technical and organisational capacity, and a continued flow of food in both urban and rural areas, enhanced social justice and a transition to ecologically sustainable production and distribution systems.

Expanding the productive base

In terms of availability, production could benefit from expanding the productive base to incorporate a wider group of people farming for themselves. One possibility is to retain the small core of 20% of large-scale commercial and corporate producers who generate up to 80% of production, while redistributing the remainder of land to a large number of black owners (collective or individual) over the next two decades. This transfer would ideally be done on the basis of a fair negotiation with the current landowners of this land. Depending on the type of support provided, importantly for agricultural production but also for settlement and mixed land use, this could go a long way to realising restorative justice (addressing the wrongs of the past) while also providing a material basis for active mass participation in realising distributive justice (making sure everyone gets a fair share now).

- Critical here are questions of water infrastructure for household and productive use, and participatory research and development and extension services for agriculture.
- Decentralised agro-ecological training centres can go a long way towards supporting socially and ecologically sustainable production.



- Dedicated experimentation conducted with land reform farmers can establish clear links between the social and ecological dimensions of transformation.
- Discussions with commercial farmers on a transition to radical multi-functionality may also lead to successful transitions, especially among medium-scale commercial farmers.
- Agro-ecology and its support systems are knowledge intensive and it will take time to build the requisite skills and knowledge. The point is to start with a very clearly defined and manageable agenda and expand through learning in practice. Well-directed policies and dedicated public and development aid resources for such experimentation will be valuable.

Democratising economic ownership and decision making

The table at the end of the paper shows large numbers of enterprises in downstream activities (processing, manufacturing,

distribution). AgriBEE and the Department of Trade and Industry (DTI)'s agro-processing initiatives may contribute to shifting ownership of economic assets. Government and civil society efforts to build co-operatives, in primary agriculture and food processing (and potentially distribution), can play a role in democratising economic ownership and decision making. CPAs and other collective land-owning institutions can add to this.

But the mainstream approach to developing these models tends towards integration with the supply demands of the corporate core, rather than either developing alternative distribution channels (with public procurement – government institutions buying a portion of their food requirements from small-scale and black farmers – as a central one) or identifying support needs and providing material, technical and other support to build up the strength and sustainability of existing informal systems of agro-food processing and distribution. The result is that small-scale farmers and food processors are adversely incorporated into the system, which reproduces the unequal power relations at the heart of the current agro-food system.

Reducing food waste through changes in distribution

More investigation and interventions are needed to cut food waste. It seems that most waste occurs during distribution, which suggests a need for improved cold storage, transport infrastructure, logistics capacity and food handling. Food losses from lack of adequate storage facilities and lack of access to markets account for significant waste in southern African food systems. As small-scale farmers begin to generate a greater part of the total output, these issues must be taken into consideration and planned for. Decentralised processing facilities and shorter, more localised supply chains can cut food losses.

Informal distribution systems make an important contribution to daily food access for the poor. A modernising approach, which seeks to eliminate informal systems of distribution or convert them into larger commercial entities, ignores the precise features of these informal systems that make them so valuable. These include:

- flexibility (e.g. willingness to give credit)
- locational advantages
- package sizes that are appropriate for consumers who are unable to store perishable food at home
- local economic multipliers where cash circulates in the local economy a few times before leaving, if enterprises have emerged from the locality.

An increasing amount of work is being done on informal distribution systems, especially in cities, but there is still a split between cities as zones of consumption and rural areas as zones of (agricultural) production. More work on food consumption

in the rural areas (commercial farmlands, rural towns, informal settlements and communal areas) is needed.

Increasing the entitlement to available food

For more than a third of households across the country, lack of access to enough food at all times is probably the most immediate issue. Social grants play a critical role in allowing poor households to have entitlement to at least a small portion of the available food. Grants could be expanded into a universal income grant to incorporate the large number of able-bodied women and men who do not have employment or access to existing social grants.

Other interventions might include statutory requirements for distributing edible food (which supermarkets, hotels and restaurants throw away) to targeted shelters, soup kitchens, local food banks and other institutions, which can channel food to those without. These channels can be strengthened and expanded. Food safety must be ensured. For civil society organisations, including those under the broad umbrella of the food sovereignty movement, more thinking needs to be done about distributing agro-food products and how this can be achieved on the basis of democratic organisation and solidarity. Practical questions include where food comes from, how it can be stored, food safety and how it can be distributed.

Approaches to food use

From a food use point of view:

- Health facilities, access to clean water and education are all essential parts of an integrated strategy. Dietary diversity is dependent on a range of products.
- Some small government programmes support research and development into indigenous crops. It is not likely that everyone will shift to traditional or indigenous foods, but these can be made more readily available as an option for consumers.
- Nutrition labelling and education are important to warn of the dangers of fast foods and processed foods in particular.
- A sterner approach to salt and sugar content in processed and prepared foods is needed, by imposing statutory limitations.
- Nutrient supplementation and food fortification may be necessary in the short term, but cannot be a substitute for the naturally-occurring micronutrients in vegetables, fruit and whole grains. Like the Green Revolution approach of concentrating on macronutrients in synthetic fertiliser formulation, food fortification inevitably concentrates on a few larger and more important nutrients (e.g. Vitamin A, iodine) at the expense of the wider diversity of trace nutrients that fresh produce contains.
- In this way, production and consumption are closely interlinked. It is clear that transformation of the system, which includes the whole web of production, distribution and consumption in all its complexity, is needed.

8. ENDNOTES

¹ This was the last year in which the Labour Force Survey included questions on agriculture for its own account.

² FAOSTAT – <http://faostat.fao.org/site/705/default.aspx>

9. REFERENCES

1. ACB (African Centre for Biosafety) (2009) 'Biotechnology, seed and agrochemicals: global and South African industry structure and trends', Johannesburg: ACB.
2. ACB (African Centre for Biosafety) (2011) 'Corporate concentration and control in the grains and oilseed value chain in South Africa: A case study of the Bunge-Senwes joint venture', Johannesburg: ACB.
3. ACB (African Centre for Biosafety) (2013) 'GM maize: lessons for Africa. Cartels, collusion and control of South Africa's staple food', Johannesburg: ACB.
4. AgBiz (2014) 'Agribusiness implementing AgriBEE: Results from the 2014 AgBiz AgriBEE survey', http://www.agbiz.co.za/uploads/documents/news/media-releases/2014/14_04_11%20-%20Agribusinesses%20implementing%20AgriBEE%20-%2020140412.pdf – accessed 2 October 2014.
5. Aliber, M. (2009) 'Exploring Statistics South Africa's National Household Surveys as sources of information about food security and subsistence agriculture', Pretoria, Human Sciences Research Council.
6. Aliber, M. & Hall, R. (2010) 'Development of evidence-based policy around small-scale farming', Programme to Support Pro-Poor Policy Development (PSPPD), Pretoria: The Presidency.
7. Aliber, M. & Mdoda, L. (2014) 'The direct and indirect economic contribution of small-scale black agriculture in South Africa'. Paper presented at the 2014 Annual Conference of the Agricultural Economics Association of South Africa, Mpekweni Beach Resort, Eastern Cape, 29 September–1 October 2014.
8. Altieri, M. (2009) 'Agro-ecology, small farms and food sovereignty', *Monthly Review*, 61:3, pp.102–113.
9. Baker, D. & Da Silva, C. (2008) 'Trends in agri-food systems: Drivers, changes, impacts and overall assessment', FAO Policy Learning Programme, www.fao.org/docs/up/easypol/484/trends_in_agrifood_systems_slides_072en.pdf – accessed 27 February 2014.
10. Barański, M. et al. (2014) 'Higher antioxidant and lower cadmium concentrations and lower incidence of pesticide residues in organically grown crops: a systematic literature review and meta-analyses', *British Journal of Nutrition*, 26, pp.1–18.
11. Bayley, B. (2000) 'A revolution in the market: The deregulation of South African agriculture', Oxford Oxford Policy Management.
12. Bernstein, H. (1996) 'How white agriculture (re)positioned itself for a "new South Africa"', *Critical Sociology*, 22, pp.9–36.
13. Bernstein, H. (2013) 'Commercial agriculture in South Africa since 1994: "Natural, simply capitalism"', *Journal of Agrarian Change*, 13:1, pp.23–46.
14. BFAP (Bureau for Food and Agricultural Policy) (2012) 'Farm sectoral determination: an analysis of agricultural wages in South Africa', Stellenbosch: BFAP.
15. Cousins, B. (forthcoming) "'Through a glass darkly": Towards agrarian reform in South Africa". (unpublished)
16. Cutts, M. & Kirsten, J. (2006) 'Asymmetric price transmission and market concentration: an investigation into four South African agro-food industries', *South African Journal of Economics*, 74:2, pp.323–333.
17. DAFF (Department of Agriculture, Forestry and Fisheries) (2006) 'Broad-based black economic empowerment transformation charter: AgriBEE', Pretoria: DAFF.
18. DAFF (Department of Agriculture, Forestry and Fisheries) (2010) 'Estimate of the contribution of the agriculture sector to employment in the South African economy', Pretoria DAFF.
19. DAFF (Department of Agriculture, Forestry and Fisheries) (2011) 'Food security', Pretoria DAFF.
20. DAFF (Department of Agriculture, Forestry and Fisheries) (2012) 'Maize market value chain profile', Pretoria, DAFF.
21. DAFF (Department of Agriculture, Forestry and Fisheries) (2013) 'Abstract of Agricultural Statistics', Pretoria DAFF.
22. Davis, D., Epp, M. and Riordan, H. (2004) 'Changes in USDA food composition data for 43 garden crops, 1950–1999', *Journal of the American College of Nutrition*, 23:6.

23. DRDLR (Department of Rural Development and Land Reform) (2013) 'Policy for the Recapitalisation and Development Programme of the Department of Rural Development and Land Reform', DRDLR Pretoria.
24. DTI (Department of Trade and Industry) (2008) 'AgriBEE sector charter on black economic empowerment', *Government Gazette*, No. 30886, 20 March, Pretoria: Republic of South Africa.
25. Du Toit, A. (2014) 'Land reform – cloud cuckoo land or calculus of power?', *Daily Maverick*, 11 August, <http://www.dailymaverick.co.za/article/2014-08-11-op-ed-land-reform-cloud-cuckoo-land-or-calculus-of-power/#.VBL1PWPIuFc> – accessed 12 September 2014.
26. Feagan, R. (2007) 'The place of food: Mapping out the "local" in local food systems', *Progress in Human Geography*, 31:1, pp.23–42.
27. Food and Agriculture Organisation (FAO) (1996) 'World food summit plan of action', <http://www.fao.org/docrep/003/w3613e/w3613e00.HTM> – accessed 30 September 2014.
28. Food and Agriculture Organisation (FAO) (2009) 'Course on agribusiness management for producers' associations. Module 1 – agrofood systems and chains'. <ftp://ftp.fao.org/docrep/fao/011/i0499e/i0499e01.pdf> – accessed 26 September 2014.
29. Friedmann, H. & McMichael, P. (1989) 'Agriculture and the state system: The rise and fall of national agricultures, 1870 to the present', *Sociologia Ruralis*, 29:2, pp.93–117.
30. Gereffi, G. & Korzeniewicz, M. (eds) (1994) *Commodity chains and global capitalism*. Westport, CT: Greenwood Press.
31. Greenberg, S. (2010) 'Status report on land and agricultural policy in South Africa, 2010', PLAAS Research Report #40, Bellville: PLAAS.
32. Hall, R. (2009) 'Land reform for what? Land use, production and livelihoods', in R. Hall (Ed.) *Another countryside? Policy options for land and agrarian reform in South Africa*. Bellville: PLAAS.
33. Headey, D., Malaiyandi, S. & Fan, S. (2009) 'Navigating the perfect storm: Reflections on the food, energy and financial crises'. Washington DC: International Food Policy Research Institute.
34. Hebinck, P., Fay, D. & Kondlo, K. (2011) 'Land and agrarian reform in South Africa's Eastern Cape province: Caught by continuities', *Journal of Agrarian Change*, 11:2, pp.220–240.
35. Hirsch, A. (2005) *Season of hope: Economic reform under Mandela and Mbeki*. Scottsville: University of KwaZulu-Natal Press.
36. IAASTD (2009) 'Agriculture at a crossroads: International Assessment of Agricultural Knowledge, Science and Technology for Development global report'. Washington DC: Centre for Resource Economics.
37. Igumbor, E., et al. (2012) "'Big food", the consumer food environment, health and the policy response in South Africa', *PLoS Medicine*, 9:7, e1001253.
38. Isakson, R. (2013) 'Financialisation and the transformation of agro-food supply chains: A political economy', paper presented to the 'Food sovereignty: a critical dialogue' conference, Yale University, 14–15 September 2013.
39. Joubert, L. (2012) *The hungry season: Feeding Southern Africa's cities*. Johannesburg: Picador Africa.
40. Kirsten, J. (2012) 'The political economy of food price policy in South Africa', UNU-WIDER Working Paper No 2012/102, http://web.up.ac.za/sitefiles/file/48/2052/Political%20Economy%20of%20Food%20Prices_Kirsten~1Feb13.pdf – accessed 27 February 2014.
41. Kirsten, J., Stander, R. & Haankuku, C. (2010) 'Measuring private research and innovation in South Asia and Sub-Saharan Africa: A South African country report', www.asti.cgiar.org/pdf/private-sector/SouthAfrica-PS-Report.pdf – accessed 28 February 2014.
42. Labadorios, D. (ed.) (2000) 'The National Food Consumption Survey (NFCS): Children aged 1–9 years, South Africa', Stellenbosch: Department of Health.
43. Lahiff, E. (2008) "'Capitalist collectivisation"? How inappropriate models of common property are hampering South Africa's land reform', paper presented to the International Association for the Study of the Commons (IASC) conference, University of Gloucestershire, 14–18 July 2008.
44. Leach, M., et al. (2007) 'Understanding governance: Pathways to sustainability', *STEPS Working Paper 2*, Brighton: STEPS Centre.
45. Liebenberg, F. (2013) 'South African agricultural production, productivity and research performance in the 20th century', PhD thesis, University of Pretoria.
46. Ligthelm, A. (2006) 'Measuring the size of the informal economy in South Africa, 2004/05', Pretoria: Bureau of Market Research.
47. Ligthelm, A. (2006a) 'Size estimate of the informal sector in South Africa', *Southern Africa Business Review*, 10:2, pp.32–52.
48. Louw, C. (2011) 'Structure of the South African fertiliser industry: Market concentration, trade and price', Pretoria: Grain SA.
49. Madima, T. (2006) 'The South African agro-processing sector overview', DTI presentation to KwaZulu-Natal Trade and Investment Faire and Conference, Durban Exhibition Centre, 30 March 2006.
50. Mbeki, T. (2003) 'The second economy: What is it and what is needed to meet the growth and development challenges it presents'. Address by the President to the National Council of Provinces, Cape Town, 11 November 2003.
51. McGregor's 2012 'Who owns whom', 32nd edition', Johannesburg: Who owns Whom.
52. NAMC (National Agricultural Marketing Council) (2008) 'The functioning of the agricultural futures market as a price forming mechanism for grains and oilseeds', Pretoria: NAMC.

53. Oelofse, S. (2013) 'Food waste in South Africa/Africa: Opportunities and challenges', <http://www.gdard.gpg.gov.za/Services/Documents/Opportunities%20and%20challenges%20of%20food%20waste%20in%20SA%20final.pdf> – accessed 30 September 2014.
54. Oelofse, S. & Nahman, A. (2012) 'Estimating the magnitude of food waste generated in South Africa', http://researchspace.csir.co.za/dspace/bitstream/10204/6097/1/Oelofse1_2012.pdf?origin=publication_detail – accessed 30 September 2014.
55. PLAAS (Institute for Poverty, Land and Agrarian Studies) (2014) 'Position papers for the National Land Tenure Summit', <http://www.plaas.org.za/sites/default/files/publications-landpdf/Position%20papers%20for%20the%20National%20Land%20Tenure%20Summit.pdf> – accessed 2 October 2014.
56. Popkin B. (1993) 'Nutritional patterns and transitions'. *Population and Development Review*, 19:1, pp.138–157.
57. Rowbotham, M. (1998) *The grip of death: A study of modern money, debt slavery and destructive economics*. Oxfordshire: Jon Carpenter Publishing.
58. SAAMA (South African Agricultural Machinery Association) (2014) 'Members', <http://www.saama.co.za/members/> – accessed 17 March 2014.
59. Sansor (South African National Seed Organisation) (2013a) 'South African seed market for agronomic crops, 2012/13', www.sansor.org/wp-content/uploads/2012/08/2012-13_SA_Agronomy-Stats1.pdf – accessed 28 February 2014.
60. Sansor (South African National Seed Organisation) (2013b) 'South African market for horticultural crops (detailed), 2012/13', www.sansor.org/wp-content/uploads/2012/08/2012-13-HorticultureStats_Detailed-final-24-April-2013_Susan.pdf – accessed 28 February 2014.
61. Sansor (South African National Seed Organisation) (2013c) 'South African seed market for forage and pasture crops, 2012/13', www.sansor.org/wp-content/uploads/2012/08/2012-13_SA_Forage-Stats.pdf – accessed 28 February 2014.
62. Saunders, I. (2013) 'Everything you need to know about social grants', <http://groundup.org.za/content/everything-you-need-know-about-social-grants> – accessed 27 February 2014.
63. Sen, A. (1981) *Poverty and famines: An essay on entitlement and deprivation*. Oxford, Clarendon Press.
64. Smith-Spangler, C., et al. (2012) 'Are organic foods safer or healthier than conventional alternatives? A systematic review', *Annals of Internal Medicine*, 157:5, pp.348–366.
65. Spar (2013) 'Integrated annual report 2013', <http://www.spar.co.za/About-SPAR/SPAR-Financial/Annual-Reports-%281%29> – accessed 17 March 2014.
66. Stats SA (2010) 'Transport and storage industry', *Report No 71-02-01*, Pretoria: Stats SA.
67. Stats SA (2011) 'Manufacturing industry: Financial 2011', *Report No 30-02-03*, Pretoria: Stats SA.
68. Stats SA (2013a) 'Land transport survey (preliminary), March 2013', *Statistical release P7162*, Pretoria: Stats SA.
69. Stats SA (2013b) 'Land transport survey (preliminary), June 2013', *Statistical release P7162*, Pretoria: Stats SA.
70. Stats SA (2013c) 'Land transport survey (preliminary), September 2013', *Statistical release P7162*, Pretoria: Stats SA.
71. Stats SA (2014) 'Land transport survey (preliminary), December 2013', *Statistical release P7162*, Pretoria: Stats SA.
72. Stuart, T. (2009) *Waste: Uncovering the global food scandal*. London: Penguin.
73. Tilzey, M. (2006) 'Neo-liberalism, the WTO and new modes of agri-environmental governance in the European Union, the USA and Australia'. *International Journal of Sociology of Food and Agriculture*, 14:1, pp.1–28.
74. Timmer, P. (2008) 'Causes of high food prices'. *ADB Economics working Paper Series*, No. 128. Manila: Asian Development Bank.
75. UNCTAD (United Nations Commission on Trade and Development) (2009) 'Trade and Development Report, 2009', New York and Geneva: United Nations.
76. USDA (United States Department of Agriculture) (2013) 'Retail foods, Republic of South Africa', *Global Agricultural Information Network (GAIN) Report No. SF, 11/1/13*, Washington DC: USDA.
77. Vermeulen, S., Campbell, B. & Ingram, J. (2012) 'Climate change and food systems', *Annual Review of Environment and Resources*, 37: pp.195–222.
78. Vidal, J. (2011) 'Food speculation: "People die of hunger while the banks make a killing on food"', *Guardian*. 24 January. <http://www.informationclearinghouse.info/article27330.htm> – accessed 26 January 2011.
79. Vink, N. & Kirsten, J. (2002) 'Pricing behaviour in the South African food and agricultural sector', report to National Treasury, http://sarprn.octopus.co.za/documents/d0000327/P280_Pricing.pdf – accessed 26 February 2014.
80. Vink, N. & Van Rooyen, J. (2009) 'The economic performance of agriculture in South Africa since 1994: Implications for food security', *DBSA Development Planning Division Working Paper Series*, No. 17. Midrand: DBSA.
81. Wills, G. (2009) 'South Africa's informal economy: A statistical profile', *WIEGO Urban Policies Research Report, No. 7*, WIEGO.
82. Wilson, G. (2008) 'From "weak" to "strong" multifunctionality: Conceptualising farm-level multifunctional transitional pathways'. *Journal of Rural Studies*, 24, pp.367–383.
83. WWF (World Wildlife Foundation) (2010) 'Agriculture facts and trends: South Africa', Cape Town: WWF-SA.


NODE	ESTIMATED NUMBER OF PRODUCERS	CONCENTRATION	FOREIGN OWNERSHIP	ESTIMATED MARKET VALUE (R'M)	SOURCES
 Seed	72 commercial registered producers with SA National Seed Organisation; unknown # of small commercial producers; unknown # of farmer/community seed multiplication groups	Variety ownership: Pioneer Hi-Bred/Pannar 21.9%* Monsanto 13% ARC 8.6% Sakata Seed 6.4% Hygrotech 5.1% GM variety ownership: Pioneer-Pannar 59%, Monsanto 26% in 2008	Pioneer Hi-Bred, Monsanto, Sakata Seed, Syngenta dominate the market	R5.57bn 2012–13 of which maize R3.5bn	ACB, 2009 SANSOR, 2013a,b,c
 Fertiliser	21 members in the Fertiliser Society of South Africa 7 companies with 99% of the market in 2008	Omnia 36%, Sasol 31%, Yara 19%, Profert 8% but Competition Commission ruling that Sasol had to divest from some of its plants; Sidi Parani purchased Yara interests in 2010	Minority ownership of Foskor (phosphate rock) by Indian companies (Coromandel and Sun) 65–70% of raw materials imported	Estimated R20bn R6bn in 2011/12 according to DAFF	Louw, 2011 DAFF, 2013
 Agrochemicals	66 members in Crop Life South Africa, plus 14 associate members, including manufacturers and distributors	Unknown	Bayer, Dow, Makhteshim-Agan, Syngenta, BASF, Monsanto, Du Pont, Sipcam, Arysta LifeScience stake in Volcano	R3.1bn in 2009 Dips and sprays R7.5bn in 2011/12	ACB, 2009 Kirsten <i>et al.</i> , 2010 DAFF, 2013
 Machinery	22 members in South African Agricultural Machinery Association (SAAMA) 21 tractor brands in 2010	Unknown	95% of tractors imported (Landini, John Deere, New Holland, Massey Ferguson, Case IH, McCormick, Bell, Mahindra, CAT)	R1.7bn in 2009	SAAMA, 2014 Kirsten <i>et al.</i> , 2010
 Finance	Land Bank, 4 commercial banks, co-operatives and former co-operatives, plus unknown number of smaller lenders	Commercial banks 54%, Land Bank 29.5% of market	Commercial banks: ABSA (Barclays Bank UK 55.1% in 2011), Standard Bank (Industrial and Commercial Bank of China 19.8% in 2011)	R88.8bn in 2012	DAFF, 2013 McGregor's, 2012
 Primary production	Approx 35 000 commercial farming units, plus around 2.5m households producing small quantities of food	0.6% of commercial units (237 units) accounted for 33% of income in 2007 5% of units (2 330 units) accounted for 53% of gross income in 2005	Mainly in industrial crops including tobacco (BAT), sugar (Associated British Foods 51.5% of Illovo in 2011), poultry (Synapp International 63% of Country Bird in 2011)	R49bn (gross value added in commercial agriculture in 2013) R12–13bn (black farmer production)	Aliber, 2009 Aliber & Mdoda, 2014 Kirsten, 2012 McGregor's, 2012 Liebenberg, 2013 Vink & Van Rooyen, 2009
 Grain storage	260 commercial silos and 172 on-farm silos	17 large owners with 94% of market Senwes, Afgri, NWK had 74% of grain silo capacity in 2011	Planned buyout of Afgri by AgriGroupe (70% North American capital)	unknown	ACB, 2011 DAFF, 2012
 Transport and logistics	Transnet (rail) plus 10+ large enterprises, unknown number of smaller enterprises	Unknown – varies by commodity	Unknown	Agriculture and forestry primary products R7bn in 2013 Manufactured food, beverages and tobacco R13.9bn in 2013	Stats SA, 2010, 2013a,b,c, 2014
 Grain trading	6 international and 12 local traders	Maize: Cargill, Louis Dreyfus 70% in 2008	Cargill, Louis Dreyfus and others	unknown	DAFF, 2012 ACB, 2013
 Processing and manufacturing	Up to 4 000 agro-processing companies	Top 10% have 70% of turnover 5 largest enterprises with 20% of total income, 10 largest enterprises with 41% of total income Most concentrated food processing sectors sugar (CR5* = 87%), beverages (77%), fish (77%), vegetables and animal oils and fats (76%), grain and bakery (75%)	Unilever, Nestle, Nabisco, Coca-Cola and others Sugar: Illovo (Associated British Foods 51% in 2011) Beverages: SABMiller (96% foreign ownership) Other minority holdings in stock	Food and beverages: R288bn in 2011 Value added R69bn	Madima, 2006 ACB, 2013 Stats SA, 2011 McGregor's, 2012
 Wholesale and retail	5 major food retailers (Shoprite, Pick n Pay, Spar, Woolworths, with Wal-Mart-Massmart increasing share in food retail) 261 000 hawkers, 127 600 spaza shops, 40 100 shebeens in 2004	Retail: large enterprises with 73% of income in 2012 (Stats SA) 'Modern grocery retailers' with 51% of total market in 2011 (USDA) Wholesale: large enterprises with 69% of income in 2012 Massmart around 22% of food wholesale	Massmart (Wal-Mart 51%) Shoprite (JP Morgan Chase 14% in 2011, other smaller holdings) Spar (Government of Singapore Investment Fund 5%, BNP Paribas 3% in 2013), other minority holdings in stock	Retail (food, beverages and tobacco) Specialised stores R51bn, non-specialised stores with FBT predominating R225bn in 2012 Wholesale (food, beverages and tobacco) R203bn in 2012 R16.7bn spent on food, R4.6bn on alcoholic beverages and R2.2bn on cigarettes/tobacco (total R23.5bn) at informal businesses in 2004	Stats SA, 2013a,b Spar, 2013 McGregor's, 2012 USDA, 2013 Ligthelm, 2006

TABLE 1: Overview of contemporary agro-food structure in South Africa

*CR5 = concentration ratio (market share) of 5 largest companies





The
ATLANTIC
Philanthropies



PLAAS 

Institute for Poverty, Land and Agrarian Studies
Faculty of Economic and Management Sciences

-
-  www.plaas.org.za
 -  +27 (0)21 959 3733
 -  info@plaas.org.za
 -  www.facebook.com/PLAASuwc
 -  [www.twitter.com @PLAASuwc](http://www.twitter.com/@PLAASuwc)