

# 24 A Future Strategy for Organic Development in Southern Africa

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## Abstract

This volume brought together research on concepts and global perspectives on organic food systems, on methods of building capacity in times of climate change, on supporting organic farmers and on upscaling the organic sector in Africa. This chapter summarizes these findings and concludes that four priorities have been identified: (i) to diversify the farmer base; (ii) to develop climate smart organic agriculture; (iii) to educate young people and consumers about organic food systems; and (iv) to support agricultural education, especially for farm women. The potential for developing organic markets and aligning emerging organic farmers with them is discussed in detail, including restaurants, retail, government feeding schemes, a variety of box schemes, office parks and corporate canteens and direct sales to consumers. Several 'smartphone apps' are explained in this regard, and a 3-year project is outlined to develop the organic sector and appropriate technical and extension support. The need for monitoring and evaluation is outlined, and a system for measuring farm sustainability progress is developed for individual farmers at single farm level. Intervention schedules for 1 year, 5 years and 10 years are then developed for the South African organic sector. A system for using existing farming skills and infrastructure to build vibrant and diverse sustainable farming systems is outlined, using apprenticeships, mentorship and research.

## Introduction

The book has presented a global overview and a conceptual framework to describe the situation in which farmers, food processors, canteen planners, school authorities, chefs and consumers find themselves, and it suggests how they can progress towards a more sustainable future. Tools, approaches and research results have been described, each one of which has a role to play in transforming Southern African food systems from the current situation, where 7 million South African (SA) families are food insecure,

and levels of obesity and non-communicable diseases such as diabetes, high cholesterol, chronic heart conditions, autism and cancer are rapidly increasing, and where stunting in infants remains unacceptably high (as shown in Chapter 7, this volume). Addressing these problems will require political will and energetic activism, as well as good science. Chapter 23 of this volume made some suggestions about urban food production in Africa; this chapter will look specifically at transforming food systems in SA, with organic agriculture (OA) as the vehicle for this transformation.

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Transforming SA agriculture requires four sets of changes:

- Presently, 10,000 mostly white farmers produce 80% of food sold in formal markets; half of this food is produced by 300 mega-farms – this is a very narrow and racially profiled base, and very risky for future SA food security; *the farmer base needs to expand and diversify, involving more women, more young people and more cultural diversity.*
- With climate change, many of our current food-producing areas will become, at best, marginal for rainfed cropping; research-based strategies for improving water use efficiency (WUE) and sequestering soil carbon will be critically important. *Water efficient and environmentally sustainable organic food production systems are needed.*
- In general, SA food choices are currently unwise, with a great deal of the child support grant monies spent on empty calories; obesity, diabetes, heart disease and stress-related sickness have become major problems; *organic food systems offer a healthy, nourishing and environmentally sound alternative, and public nutrition education is needed.*
- Women make most of the decisions about food purchase, and also about smallholder farming, and yet much of the agricultural training targets men; as the case of Ghana showed, *educating women (rural and urban) about organic food systems will have positive repercussions on household food security.*

These changes can be summarized as:

1. Diversifying the farmer base;
2. Developing evidence-based climate smart OA;
3. Food education for young people and consumers; and
4. Agricultural education, especially for farm women.

In this final chapter, after looking at the need for a paradigm shift and reviewing what the research of the past 10 years has shown us about agricultural development, we will analyse the market opportunities and how they affect the four areas mentioned above. We will then examine an existing project proposal which aims to start by training 50 organic ambassadors to work on the above four sets of changes. After that, we will look at how sustainability

indicators can help to build a database for agro-ecology in SA, and how the organic sector will help build this database, and finally, we will present a summarized programme for the organic sector for 1 year, 5 years and 10 years in table form as an action plan.

## Paradigm Change: Moving from Two Conflictual Narratives to Transformation

As Thomas Kuhn (1962) tells us:

[those who] learned the bases of their field from the same concrete models ... will seldom evoke overt disagreement over fundamentals ... [as their]... research is based on shared paradigms ... [and]... the same rules and standards for scientific practice. That commitment and the apparent consensus it produces are prerequisites for normal science, i.e., for the genesis and continuation of a particular research tradition.

(Kuhn, 1962)

The old paradigm in agricultural research was: maximize yields per hectare, whatever the environmental cost. This helped us to treble yields per hectare, but also has destroyed the integrity of our food system globally. Health is in decline, the environment is under stress, farmers can only make profits by increasing sizes of herds, intensity of cropping and mechanisation of the process. The result is industrial agriculture, climate change and massive health problems. That it is now time for a paradigm shift is clear to thousands of environmentally responsible farmers, consumers and policy makers!

This is a scientific revolution based on several changes in scientific consensus, and the way we think about agricultural knowledge systems; as outlined in this volume:

- 'Agricultural extension' has become: communication and innovation.
- 'Maximizing industrial food production' became: develop sustainable food systems.
- 'Government by multi-nationals' needs to become: strengthen local government institutions (response, not control), develop food sovereignty.

A geographical paradigm shift is needed, understanding sustainable cities (with inner-city

food gardens) within peri-urban intensive agricultural production, nested in farming areas which provide essential ecosystem services, employment, health and beauty. Catherine Macombe (2018) believes that cities will soon have to limit their size to a food footprint, which she defines as the size of the city which can be sustained by the area of land around the city; as transport becomes more expensive, this will constrain the growth of cities, and limit their size to what can be sustained environmentally.

A prerequisite for SA policy makers is an effective database of agroecological farming activities, and in order for these activities to develop and become mainstream, a process of institutional development and capacity building needs to take place. This requires a framework for measuring progress towards more sustainable agriculture, based on an understanding of social, environmental and economic criteria. Monitoring and evaluation of emerging agroecology bright spots is needed, with applied research assisting farmers to develop soil fertility and improve WUE.

Our experience as an organic sector in Southern Africa over the past 50 years leads us to certain conclusions based on broad experience of supporting farmers (large and small) with training, extension, quality management, scientific advice on soils, crops, pests and diseases, economic planning support, market linkages and capacity building. It is clear that a developmental state (as SA prides itself on being) should be putting considerable resources into transformation of agriculture. Yet, Minister Gugile Nkwinti (Department of Rural Development and Land Reform) estimated in 2009 that 90% of SA land reform projects were failing. The reasons for this are well known, but the lack of political will in implementing a workable agricultural transformation programme has been a feature of the ANC government since 1999. The initial Rural Development White Paper of 1996 had many positive features, but in subsequent years, most of these were abandoned. The National Development Plan (NDP) rediscovered some of these features (NDP 2030, 2012), but under the Zuma government the NDP languished in a political wilderness.

'White monopoly capital' was used as a rallying cry to unite those who were suspicious of anything to do with big business, technology

or mentorship by experienced business people to bring about a transformation which uplifted all, and this attitude is vilifying one section of the SA population, while plundering the state for selfish ends. It has been shown that the phrase 'white monopoly capitalism' was part of a carefully orchestrated plan by the Gupta family, assisted by the public relations company Bell-Pottinger, to distract SA's attention from systemic plundering described in the Public Protector's *State of Capture* report (Madonsela, 2017).

From the late Peter Mokaba's call 'Kill the farmer, kill the Boer' to allegations of targeted farm murders over the past 20 years, the (white) commercial farming sector has been portrayed on the one hand as racist, capitalist, exclusive and ruthless, and on the other hand as the totally innocent victims of reverse racism. Unfortunately, these two polarized pictures reflect our difficult history, and each perspective appears as 'current unacceptable injustice' to members of particular social groups. There is some truth in allegations of farmer racism, and the experience of too many black SA citizens has been: (i) poor pay for farm labourers; (ii) the institutionalized apartheid farm prison labour system; (iii) continuing poor conditions of many farmworkers; and (iv) the difficulties of accessing good education for children of people working on many SA farms.

There is also good reason for farmers to be concerned about the future, whether they are white or black, large or small scale, organic or conventional; government has not supported agriculture effectively over the past 30 years, and over 40% of skilled labour was lost to SA agriculture over the past 20 years. Crime, in rural as in urban areas, is a major problem for all SA citizens, and even more so for visitors from elsewhere in Africa, who often have to cope with xenophobia as well!

However, Presidents Mandela and Mbeki each gave valuable indicators for the transformation of SA agriculture (as shown in Chapter 1, this volume). President Zuma chose to ignore these answers while diverting funds intended for agricultural transformation to the enrichment of a few corrupt persons. President Mandela advocated the Reconstruction and Development Programme (RDP), aimed at giving disadvantaged SA citizens access to housing, water and energy, and at transforming our educational system. President Mbeki advocated spending at

least 10% of gross domestic product (GDP) on rural development, in order to address rural poverty, an example which Ghana has followed with positive results (as explained in Chapter 1, this volume) by doubling spending on agricultural education, targeting farm women, with resulting drastic decreases in poverty and food insecurity.

We will introduce a set of measurable indicators developed with the International Federation of Organic Agriculture Movements (IFOAM) as part of the Sustainable Organic Agriculture Action Network (SOAAN) activities and which were presented to the IFOAM 'Organics 3.0' Conference in Goesan, South Korea in 2015. The conference built on earlier work done for the Bonn Sustainability Indicators Work Camp held in 2012, which came up with the very general 'sustainability flower' idea, and which was then developed into more concrete indicators usable by farmers to assess the sustainability of their own farms (Auerbach, 2015). These indicators will be presented towards the end of this chapter, with ideas of what is needed to grow the SA organic sector in a healthy and well-balanced way, and of how to measure progress. The SA organic sector needs to move forward with some introspection and a process of listening to consumers about what they want, and attention to interacting with policy makers. We need to take careful note of how the Danish organic sector developed dramatically when good research, consumer feedback and interaction with policy makers became efficient and was seen as important (Chapter 3, this volume). First, let us review the main findings of our research thus far.

## Review of the Main Findings of this Book

### Educate farm women

Chapter 1 showed how the President of the International Fund for Agricultural Development (IFAD) pointed out that "To farm successfully, women need agricultural resources and inputs, as well as access to rural finance, education, and knowledge. They also need rights to the land they farm and a voice in the decisions that

affect their lives' (IFAD and WFP, 2013). Chapter 1 went on to comment:

Later that week, we presented the President of Ghana with an award, after the ministers of Agriculture and of Education reported to us how Ghana had halved poverty and food insecurity: the key intervention was education of farm women, and this was achieved by doubling of the agricultural education budget in Ghana. The Minister of Education (a qualified social worker) spent time with us, and commented that Thabo Mbeki's insights on rural development [using 10% of GDP for rural development] had inspired them to invest in rural infrastructure and people. FARA [the Forum for Agricultural Research in Africa] formally recognized this achievement during this Agricultural Science Week in 2013 in Accra 'Africa feeding Africa through Science and Technology', with the acknowledgement of progress towards a food secure Ghana. If we understand and respect local institutional dynamics, much can be achieved.

(Chapter 1, this volume)

### Build farmer skills progressively and systematically

Chapter 1 of this volume also presented a model (Fig. 1.1) of farmer progression from subsistence, through efficient subsistence farming to semi-commercial and perhaps into commercial farming systems. It was shown that national food self-sufficiency (Fig. 1.2) may be achieved with a few technically efficient mega-farms, but that this is short term and not very sustainable, socially or environmentally. While many approaches to household food security are more equitable, they are not always socially or environmentally sustainable in the long run, unless capacity-building processes accompany them. The significance of the triple bottom line was analysed in Auerbach (2018a), concluding that the paradigm shift from a dual economy structure with a few large commercial, short-term-oriented farmers, and a large number of small-scale, short-term-oriented smallholders, being the legacy of our apartheid history, has to change. We need to build on the whole heritage of SA, including both the science-based technical skills and the indigenous technical knowledge, while broadening the farmer base and insisting on social and environmental sustainability.

### Build local institutional capacity

The importance of capacity building and developing local institutions was reinforced by several chapters, showing how: (i) participatory rural appraisal (PRA) approaches are important; (ii) Participatory Guarantee Systems (PGS) may be employed; (iii) value chains may be shortened; (iv) integrated catchment management (ICM) may be employed to create 'platforms for resource use negotiation'; and (v) the impacts of drought and climate change need to be understood and planned for if future disasters and food and water crises are to be mitigated. This takes place in the context of food systems which need to be overhauled, and African food systems which have many sound traditions, but which have been eroded by the advent of fast foods rich in empty calories, salt, fats and sugars. These are produced as demanded by the global industrial food corporations, and only recently have consumer organizations appeared in Southern Africa to raise awareness concerning the health issues associated with these changes, and the accompanying erosion of food sovereignty.

### Educate consumers about sustainable food systems and health

At the heart of sustainable food systems is sustainable agriculture, but it is only one part of the food system; the links between producers, processors, food preparers and consumers need to be strengthened. Experiential learning will be a vital part of the processes of training organic farmers and training other players in the food system to take a more holistic and responsible approach, and to keep the value chains as short as possible. Quality management requires conscious consumers, demanding quality, healthy food, and conscious producers, caring for their environments and providing ecosystem services which are valued by local government and resource managers.

Given SA's political past and the alienation of many people from sustainable use of the land, a multi-dimensional revolution is required in approaches to rural development and food systems' restoration. The history of the organic and allied movements was summarized in Chapters 1 and 2, while Chapter 3 of this volume outlined

what the United Nations Conference on Trade and Development (UNCTAD) recommended in terms of how governments could support an emerging organic sector. It also showed how research, especially in Denmark, helped the organic sector to support both farmers and consumers. These two strands, the need to provide effective education and training to rural people, especially rural women, and the need for government to support research into various aspects of organic food systems, are fundamental to the emergence of a successful organic sector, and to transformation of SA agriculture socially, environmentally and economically. These findings are summarized in Auerbach (2018b), which concludes that OA research should target both OA production problems, and consumer requirements and perceptions, and work with government to help formulate evidence-based policy.

Chapter 3 of this volume quoted the UNCTAD (2008) Executive Summary, where Point 4 recommended:

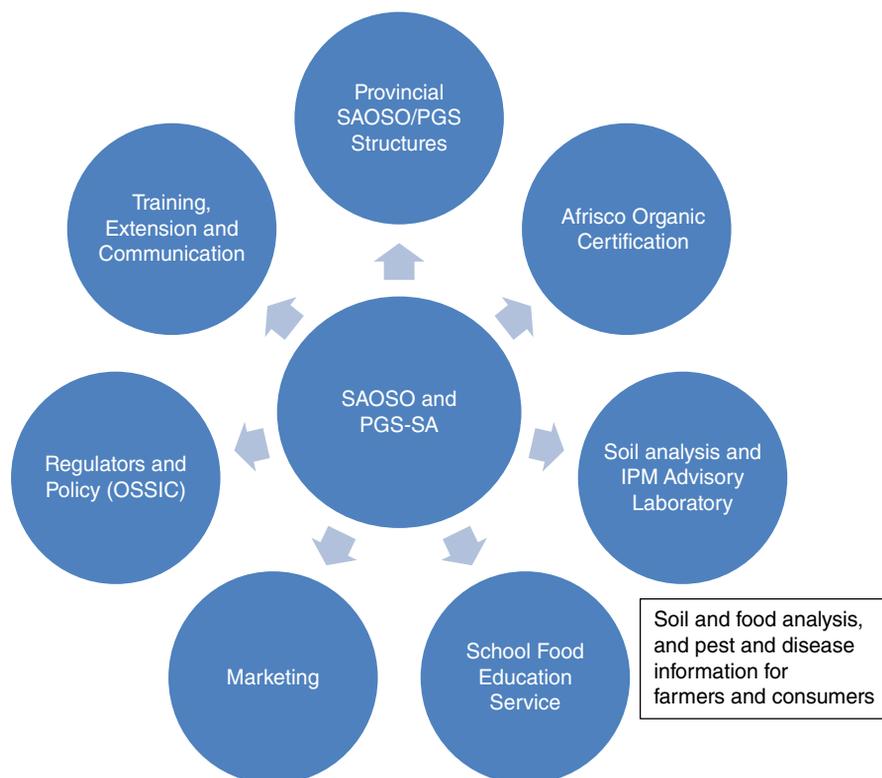
An action plan for the organic sector should be developed based on analysis of the state of the sector, participatory consultations, a needs assessment and proper sequencing of actions. The action plan should state measurable targets for the organic sector to help agencies and stakeholders focus their efforts.

(UNCTAD, 2008)

For this to happen, both the South African Organic Sector Organisation (SAOSO) and PGS-SA need to develop into credible, well-resourced national organizations, with a strong grass-roots presence in the nine provinces, each with a training centre, and with marketing arms (Fig. 24.1). All three SAOSO and PGS-SA consultative workshops in 2018 were told by farmers that a soil and food analysis facility is needed, which can give objective, research-based advice to farmers and consumers on soil, environmental, animal and human health issues.

This proposed structure for the organic sector needs to meet the four areas of transformation identified above:

1. Diversifying the farmer base;
2. Developing climate smart OA;
3. Food education for young people and consumers; and
4. Agricultural education, especially for farm women.



**Fig. 24.1.** A proposed structure for the organic sector in South Africa (SA). IPM, Integrated catchment management; OSSIC, Organic Sector Strategy Implementation Committee; PGS, Participatory Guarantee System; SAOSO, South African Organic Sector Organisation.

However, they need to be based on a sound market analysis, and ongoing marketing development. The Biological Systems Laboratory has arisen directly out of the research described in this book, and the consultations with the organic sector in 2018.

Chapters 1–3 of this volume sketched the historical and research context; chapters 4 and 14 looked at experiential training and the developing international community of praxis. Chapter 5 defined food systems, and Chapter 6 gave practical examples of how these function in practice; Chapter 7 showed the impacts on food systems and household food security when weather shocks affect food prices.

Chapter 8 showed how PRA can help farmers to plan and conceptualise their food production systems, while Chapters 9 and 11 showed how the value chain can be shortened, allowing money to circulate in local community investment

programmes, and how smartphone apps can help farmers to communicate and access the market. The usefulness of PGSs in accessing high-end markets was outlined in Chapter 10, while Chapter 12 used the Eastern Cape province of SA as an example of how rainfall has changed over the past 20 years, and what the implications are for vulnerable small-scale farmers reliant on rainfed agriculture.

Chapters 13 and 19 deal with WUE, first in urban then in rural contexts, while Chapters 15 and 16 look at the organic sectors in Uganda and Zambia, respectively. Uganda has put a support structure in place and has developed training and marketing capacity, and that sector has grown substantially, and although it faces lack of government support and some stagnation at present, there are over 1 million organic farmers in the country who derive significant benefit from OA. Zambia was developing rapidly, but due

to institutional decay and lack of accountability, the National Organic Agricultural Movement has declined sharply in its capacity to serve the needs of organic farmers in Zambia.

An accurate and cost-effective technique suitable for farmers to test soil carbon is described in Chapter 17 (the Rapid Incineration Field Test), and this technical innovation could help farmers to quantify their contribution to carbon sequestration.

Chapters 18–22 describe in detail the findings of the Mandela Trials, first the baseline data for the site, then comparative WUE, then the biological pest and disease control approach and finally the soil microbiology. These findings are combined in Chapter 22 with discussion of the soil chemical changes and a comparison of agronomic yield components.

The final section deals with urban food production in Africa and an organic sector plan.

## Market Potential

There is much scope to develop market linkages that would allow for the farmer to access a better price on a local market level. Coordination of the supply and demand between the producers and the overall regional market requirements will enable an inclusive value chain to develop over time. The existing market potential is really broad for smallholder farmers, and currently large corporates such a Tsogo Sun, school feeding schemes, restaurants, hospitals, corporate canteens, local markets, independent retail stores and the informal sector are all potential markets.

The advocacy and marketing strategies would be developed on the back of innovation in supply chain management, sourcing local, short supply chain, carbon-effective logistics solutions and supporting local economic development, as the basis of a sound marketing strategy to leverage local support and create awareness around agroecology and PGS in the market.

Market potential can be uncovered through a survey process in the selected region in collaboration with the University of Johannesburg with the use of the #ResearchGo app which will map the economic activities in the focus areas, and will inform the approaches and interventions, in order to connect these regional localized value

chains. Ensuring that ordinary people can access a wider food basket and broader nutrient profile is a priority.

The following are potential role players in an inclusive value chain:

- *Wellness Warehouse and Fruits Unlimited* – The current total of 27 retail stores, established in 2018 and 2019, give this new chain national coverage. This business entity has endeavoured to set up a national chain of independent retail stores and have committed to use the SAOSO Organic Standards for Production and Processing, and to source, as far as possible, from local smallholder producers.
- *Jacksons Real Food Market* – This is based in Gauteng with two stores, and is looking to expand coverage into the Western Cape. Jacksons Real Food Market have committed to sourcing from local smallholder producers and advocate for passing 50% and more of the retail value back to the producer.
- *High-end restaurants*, chefs associations and innovative businesses such as Deli Delicious – These have links through Izindaba Zokudla, a regional farmers' forum that is coordinated by the University of Johannesburg, and Khula, an online marketplace looking to develop market linkages for farmers in Gauteng and KwaZulu-Natal (KZN).
- *Local farmers' markets* – Smallholder producers can supply products to these existing farmers' markets and new marketplaces that may become established which aim to supply the local community members in that area, with a primary focus in the townships.
- *Independent retail outlets* – Independent retail outlets such as Jacksons Real Food Market, Wellness Warehouse, Organic Emporium, Ethical Suppliers and other small food-related businesses could be supplied with fresh produce and free-range eggs as a starting point. Processed goods could also potentially be sold in such outlets.
- *Local informal traders* – Street vendors and 'spaza' shops are an extremely relevant market to consider. Having fresh produce that is grown locally will steer the food back into the communities through the informal market exchange. Grading of produce at

regional agrihubs could allow for produce with cosmetic blemishes to be sold to the street traders at a lower price than retail.

- *Government feeding schemes* and community feeding schemes have been identified as a market for smallholder producers by government, as well as farmers' associations and other sector bodies. Linking the smallholder producer to this market will allow for local produce to be supplied where it is needed most: schools and hospitals, for example. The main challenge is the procurement process, which often sees government taking up to 120 days to pay producers for fresh produce or processed goods. This time frame is not financially viable for the smallholder farmer. School feeding schemes currently feed 9 million mouths a day, but often with processed and dried goods, and rarely with local fresh produce.
- *Government-driven programmes*, agrihubs and irrigation schemes, now all aim to supply smallholder produce into these programmes. Processed goods such as fermented sauerkraut and vegetables would be a great addition to the school feeding schemes. A diverse basket of food goods would supplement the diets of the learners, and increase the nutritional value and immune system development specifically for children in Early Childhood Development Centres.
- *Box schemes* – A variety of box schemes and food packages could cater for various living standards measure (LSM) brackets. Existing businesses such as Munching Mongoose could cater for the high bracket LSM. Local box schemes, distributed from agrihubs as potential microbusiness for youth, could serve the lower LSM bracket. Aggregating the produce from micro-producers will unlock such opportunities in the value chain for smallholder farmers.
- There are new developments and *inner city regeneration* programmes (e.g. the Maboneng Precinct) where cost-effective flat rental opportunities and retail spaces could cater for a young upcoming market. Local restaurants and apartment blocks could be supplied by short supply-chain solutions. Hydroponic rooftop farming is being advocated in the cities with the Urban Agriculture Initiative developed by the Chamber of

Mines, aiming to establish 100 hydroponic rooftop farms in Johannesburg central business district (CBD). These types of microbusinesses, adapted with agroecological principles, could develop a thriving community of rooftop farmers in the CBD of Johannesburg supplying the local market options directly. Allotment gardens should be developed by local authorities with appropriate water supply and security, and should be integrated with municipal organic-waste composting programmes.

- *Office parks and corporate canteens* – This is a viable market for a short supply chain. Many canteens procure from the central market; the market agents source fresh produce to supply these various corporate canteens. Delivery of fresh produce to the corporate canteens will create a consistent market with large volumes for smallholders to supply.
- *Agro-processors and independent packhouses* – These are some of the low-priced market participants as they often trade fairly close to the central market prices. Offloading excess produce to packhouses will ensure a base whereby volumes of produce could be marketed consistently.
- *Direct to end consumer* – The consumer can come to the local farm and harvest their own basket of food for the week, developing a personal relationship with the farmer, re-connecting the end consumer with the production of fresh produce. Such community supported agriculture (CSA) is a feature of the European and US organic sectors.

## Corporate and Government Involvement

### Government involvement

Currently the documented support by government to smallholder farmers is very limited. Some cooperatives receive agricultural inputs but often it is sporadic and mostly conventionally orientated. Regional community seed banks have been established in the Eastern Cape and Limpopo to support the saving of seed within the communities. The aim is to ensure the

preservation of indigenous varieties. The central gene bank has been established by the Department of Agriculture, Forestry and Fisheries (DAFF) to preserve selected varieties and the genetics of selected seed stock. This government initiative could be supported through the development of peer-to-peer seed certification systems, to ensure the quality of the seed stock being deposited into the bank is stable, uniform and distinct.

Currently there is no specific programme that is geared towards smallholder farmers, but DAFF classifies smallholder farmers as subsistence farmers. As shown in this volume in Chapter 1, Fig. 1.1, and also in Chapters 9, 10 and 11, participation in shortened value chains can benefit smallholder farmers, and can help them to add value to their produce and to access high-value niche markets. The main current area for government support is for commercial market-orientated farmers. Government is stuck in an old paradigm, which only sees large-scale industrial agriculture as 'modern'; government needs to support organic smallholder farmers nationally as part of a movement towards becoming a developmental state. All partners have a duty to work with government to deliver on the policies that have been promulgated, to ensure a food secure and food sovereign SA.

The development of programmes should not rely on government cooperation and funding; innovation generally comes from the entrepreneurs. Access to the city infrastructure such as the agrihubs will enable micro-farmers and the people from the surrounding communities to benefit from fully functional city infrastructure. These agrihubs and agri-parks are crucial for the establishment of regional inclusive value chains and were intended for this purpose, but they lack overall coordination.

Government should outsource the management of these hubs to local independent service providers. Supporting government with the agroecological extension service will be one of the potential avenues of collaboration and would result in more capacity within the government-driven extension service. Working with the various departments to achieve food security is important, as several government departments should coordinate national food security. Breaking down the 'silos' of government is a key task in establishing a functional working relationship with the public sector.

## The corporate sector

The corporate sector certainly has a role to play. Much work can be done on linking the benefits of an agroecological value chain to climate change and the Sustainable Development Goals (SDGs). These goals highlight the need for accountability around environmental damage of corporate practice. Corporate social investment funds (if managed transparently) can contribute to getting start-up projects and microbusinesses funded in the short term.

The retail sector has a lead role to play in supporting local sourcing, linking this to local economic development. This could begin the process for developing consumer interest in local and clean food. Consumers will drive the demand for local produce, corporate marketing campaigns should inform the public around conscious consumer choices, with government incentives. The corporate sector could also start many community-driven food gardens by investing in the programme to support and develop new and existing gardens.

## A Potential Project Design

The challenges of smallholder farmers have been well understood and documented by independent researchers and organizations aiming to support smallholder farmers within the agricultural sector. There has been limited impact with previous projects due to the independent nature of these programmes that often are not focusing on the systemic challenges that smallholder farmers are presented with. These needs are highlighted in the points below.

- There is a need for a variety of training offerings for farmers, extension officers and the community, ideally aligned to the Sectoral Education and Training Authority (SETA) training accreditation. The training in the provinces needs to be consistent and there needs to be a degree of quality control, and ongoing development through Training of Trainers (ToT) training packs developed by various stakeholders in the agricultural sector such as sector bodies, non-governmental organizations (NGOs) and other service providers in the agricultural

sector. Visual training material is often the best way to bridge the language gaps that are evident in the different provinces of SA.

- Extension officer training could be accompanied by a mentorship programme that will guide the new extension officers to open up areas of business in the agricultural sector and supporting the smallholder farmer with sound agroecological advice.
- The existing model of trainers transferring their knowledge and skills in the community on a voluntary or self-funded basis is not sustainable. They need vehicles, laptops and funds to host workshops. The scope to develop this training into sustainable businesses is very evident if these trainers are initially supported and incubated to become viable service providers.
- Farmers have expressed interest in training in a variety of skills sets that allow for the farmer to be fully equipped to develop farms. This should include rainwater harvesting, construction and electrical skills, among others. Farmers also require basic support in mapping, design, project planning and implementation on the land.
- Farmers need basic resources such as tools, clothing and protective gear, which might be accessed through sponsorship. As theft is a big issue, fencing is required to secure the animals and areas of production. Security of gardens will play a role in sustainability and financial viability in the long term.
- Farmers need access to land through the land redistribution programme, land bank or even public spaces owned by government or private stakeholders. Farmers require mentorship and support with business plans and record keeping so that they can access finance.
- In terms of the value chain, the biggest challenge for farmers is getting their food to a centralized distribution point such as the regional agrihubs and access to cold storage facilities that will extend the market potential for the smallholder farmers. Solutions need to be found with potential partners in business and government. Farmers must participate in the creation of upstream business opportunities with the community to enhance the socio-economic impact.
- Community engagement was key to forming trust and to encouraging a 'cultural

revolution' and this needs to continue through markets and events. The PGS system is a tool for community participatory processes to occur.

- Research and technology will play an important role. This would include needs analysis within communities, integrating data collection into the role of the extension officers. Solutions to water and energy challenges need to be explored through technologies. The Whole Food Movement advocates food processing which does not denature food; at the same time, food systems are more than just the food production or processing, and peer learning from farmer-to-farmer should play a major role in agricultural extension.

### Potential Contribution of Key Stakeholders

The potential contributions from key stakeholders have been identified nationally with many active NGOs and representative bodies that could potentially add value to a programme of this nature. In order to facilitate smooth collaboration between partners a shared vision is extremely important; this needs to be agreed upon by all participating stakeholders. What has been captured in this assessment is that there are many organizations actively contributing to various aspects of food security, but they generally lack the required national impact to see the development of an alternative food system that supports the development of smallholder farmers. It is evident that this type of work happens in pockets all around the country with little coordination around a national vision of food security within a spirit of collaboration. The streamlining of project support, with various lead organizations in selected provinces would see a coordinated effort, to ensure effective management of projects and allocated resources. This would ultimately enable documented and monitored impact on the ground with farmers and other target beneficiaries.

Other areas highlighted by the viability assessment include involvement with:

- SAOSO and PGS-SA – in respect of growing awareness, supporting the standards, the

development of training, driving value chain opportunities and the research agenda. Their roles would also include lobbying government for policy change and scanning funding opportunities for projects. The development of linkages with regional and international organizations with similar objectives was seen as an important role that needed to be facilitated.

- Organizations with developmental project experience, such as Lima Rural Development Foundation (LIMA) – for access to regional hubs and partnership on programme roll out. An agroecological extension service could add value to LIMA's stretched national extension service.
- Oxfam – as there is potential around supporting a number of their programmes, and they are interested in partnering to achieve a shared vision.
- Gender CC – as they have regional presence, strong links with women in agriculture and relationships with an international donor funder network.
- Solidarity Economy – This NGO has a strong presence in the Eastern Cape with farmers' associations on the ground. Much positive work has been achieved around cooperative development. Organizationally they are very much in alignment with SAOSO's shared vision of a food-sovereign SA.
- Media partners such as Indigo Media – as they can assist with facilitating TV adverts, radio slots, social media and print media that can disseminate a consistent message to all stakeholders of the nutritional benefits of organic food and the ethical value chain that supports the development of smallholder farmers, youth and women in agriculture.
- Research partners (e.g. the Agricultural Research Council, the African Centre of Biodiversity, SA Food Lab, universities, the Water Research Commission, conservation agencies and more recently the Biological Systems Laboratory) – as this would lead to a national agroecological research agenda.
- Other sector bodies (e.g. the Biodynamic Association of Southern Africa and the permaculture community) – as collaboration with them would strengthen the movement nationally.
- Technology partners – as collaboration through ICT solutions and supporting farmers through information exchange and appropriate technology transfer is essential. UJ PEETS is a strong partner within the existing university network as well as Indigo Media with the Aparate farmer database/platform technology.
- Partners with objectives that align with the shared vision – it is important to identify such partners and link with them online to shared resources and events; engaging with farmers' associations, unions and existing agricultural cooperatives.
- Community-based organizations, farmers' forums and NGOs – to work together in a cohesive manner to achieve the collective vision of a food secure SA. SA Food Sovereignty Campaign can drive the newly formed policy and general awareness around systemic change.
- Government at national (e.g. the Organic Sector Strategy Implementation Committee (OSSIC)), provincial and local levels – to advocate for support for infrastructure and value-chain-related activities.
- Input suppliers, seed suppliers and service providers – to be endorsed through the programme for the roll out of training programmes and shared services to smallholder farmers.
- The retail sector – to provide opportunities to smallholder farmers through the buy-in of an inclusive value chain with ethical distribution of profits and to develop strategic market linkages for sustainability in the value chain.

### SAOSO Sector Plan Recommendations

SAOSO in partnership with many of the stakeholders mentioned in this chapter should develop a programme that supports: (i) smallholder farmers with training for best practice; (ii) an innovative extension service; (iii) integration of innovation and appropriate technology into the supply chain; (iv) access to local markets, endorsement and certification; and (v) peer-to-peer information exchange systems that see innovation throughout the value chain. The project

would catalyse business creation among youth and women in the agricultural sector and establish a local market. That will enable a viable livelihood to be achieved for a large percentage of farmers, representing the majority of emerging producers in the SA agricultural sector.

Over a 3-year period the main objectives of the pilot programme will be to:

1. Increase the socio-economic impact of 5000+ supported farms in this programme.
2. Establish and grow businesses for youth and women in agriculture over a period of 3 years.
3. Facilitate the development of new businesses and the inclusive agricultural value chain for smallholder farmers.
4. Coordinate and support a network of farmers in three provinces (Gauteng, Western Cape and KZN), with the opportunity to expand into the Eastern Cape and Limpopo with potential partners.
5. Train and develop a coordinated agroecological extension service that can work in selected provinces and replicate training into the farming communities.
6. Increase institutional capacity of SAOSO and PGS-SA as the sector bodies that will drive the programme with selected partners and into the future.
7. Develop an advanced ICT solution for an extension service and farmer tools, and facilitate an online farmer database with selected partners.
8. Conduct targeted action-driven service and research programmes setting up a technical facility in George in the Southern Cape, with a focus around integration of appropriate technologies into smallholder agriculture, business model creation for youth and women, true cost accounting of production, carbon sequestration and soil and food testing.

### Inception phase – 3 months

The objectives of the inception phase are as follows.

1. *Formation of the regional chapters in collaboration with SAOSO and PGS-SA* following correct governance procedures. Coordinate the inception meetings between key stakeholders face to face and online.
  - a. Introduce the regional representatives to the farmers' forums and existing support services in each province.
  - b. Identify potential candidates for the agri-ambassador training programme.
2. *Formation of the five working groups for the project, capacitated with the relevant skill sets housed within SAOSO and PGS-SA.*
  - a. The five working groups are: (i) Farmers Services; (ii) Standards and PGS; (iii) Communications and Advocacy; (iv) Value Chain; and (v) Research. Each must be capacitated with project managers, mentors, farmers and facilitators.
  - b. Integration with Izindaba Zokudla farmers' forum and the Youth in Agri Initiative (YAI) programme in collaboration with the University of Johannesburg; and regional expansion of the farmers' forums into the wider Gauteng and KZN provinces.
3. *Formally present the pilot programme to potential partners and stakeholders for support and collective buy-in. Formalize partnerships in key provinces through stakeholder engagements face to face and online.*
  - a. Legal documents and Terms of Agreements will be developed in consultation with Werksmans Attorneys.
  - b. Identify crucial partners in selected provinces and form partnerships.
  - c. Present the broader stakeholders in the network.
4. *Develop SAOSO training programme and YAI mentorship programme for farmers, the extension service and government.*
  - a. These training programmes must ideally be aligned to the SETA accreditation for external funding opportunities to roll out the training.
  - b. There is an opportunity to collaborate with the biodynamic (BD) and Rainman Landcare Foundation training programmes which are SETA accredited.
  - c. The conversion programme in collaboration with Agri-Skills is key to ensure that all forms of current production methodologies are included and can be converted to an agroecological food system.
5. *Software development and integration of a consolidated ICT solutions in smallholder agriculture – #ResearchGo, Khula and Aparate.*
  - a. Creation of the various surveys that will be conducted – baseline survey, infrastructure

audit, project mapping, research and extension evaluation.

b. Streamlining of the record keeping system on the ICT solution, with accounting systems for the farmers and the extension service to use.

c. Linking the Khula online trade platform and Aparate online farmer database.

d. Developing and integrating agri-chain and other traceability and transparency software into the value chain.

**6. Planning a Communications and Advocacy Campaign** – The launch of the programme to the public using social media and other platforms to broadcast a unified message of a food sovereign SA. This should include:

a. A local campaign linked to broader topics for food system transformation. Also an online presence and public engagements hosted in collaboration with various other stakeholders.

b. A documentary on the current food system and how smallholder farmers can contribute to the socio-economic development in SA.

c. A roadshow to gather public support for the programme in collaboration with partners.

### Project proposal action items for year one

The objectives for year one are as follows:

**1. Create a strong recruitment process for the agri-ambassadors** (agroecological extension service). This will look to existing success stories that are currently providing a level of agricultural service to farmers.

a. The identification of 50+ inspired candidates who are already active in the agricultural sector, to provide a solid training programme and mentorship process throughout the duration of the 1-year training and mentorship programme.

b. Ensuring that this initial batch of candidates is capacitated with the resources and business skills to develop into a sustainable service provider.

c. Develop the YAI with the University of Johannesburg and SAOSO as the programme for agri-ambassador training and business model development of youth in agriculture.

This programme will research and pilot the various business models in the value chain with selected youth enterprises and partners, such as the Green Business College in Johannesburg. The successes and challenges will be monitored and reported throughout the programme.

d. Support Izindaba Zokudla (University of Johannesburg Farm School) with the establishment of regional farmers' forums in Gauteng. This platform will build the network of farmers, facilitate business development and community participation.

**2. The monitoring of working groups and regional chapters** for the project.

a. The establishment of five working groups within SAOSO that would enable the potential project to be delivered successfully. These working groups are: (i) Farmers services; (ii) Standards and PGS; (iii) Communications and advocacy; (iv) Value chain; and (v) Research.

b. The formation of regional chapters integrated with a future extension service and training programmes.

c. The formation of an effective working partnership with PGS-SA and streamline the establishment of new PGS nodes.

d. The incubation of the new PGS nodes through information and knowledge sharing and integration of technology systems that will support the new nodes to fruition.

**3. Training of the first round of 50+ agri-ambassadors** in collaboration with SAOSO and PGS-SA.

a. The training of the 50+ agri-ambassadors through a modularized programme, in conjunction with the YAI programme and Izindaba Zokudla farmers' forum to support the groups of farmers.

b. Integrate with practical work to support identified projects in each province.

c. Leadership and business development skills: strong focus to the training programme.

d. Training on the software and ICT solutions available to support them in their work.

e. Identifying upstream business opportunities and providing the support though business incubation with selected partners.

f. The identification of demonstration sites that would enable the training in production methodologies, land design, agroprocessing and technology transfer.

**4. Surveying and mapping conducted by the agri-ambassadors in Gauteng, Western Cape and KZN** – this will include:

- a. Baseline data surveys, infrastructure audits, farmer identification, local economy surveys, project mapping, resource location, market analysis.
- b. Analysis of data to inform the region-specific intervention – The database will allow for live data to be analysed and will provide important knowledge for the coordination of capacity and resources.
- c. Logistics solutions will be identified and acted upon with associated partners.
- d. Establishment of a research agenda and appropriate technology transfer.

**5. Support the farmer through agroecology and PGS awareness training**

- a. Roll out of agri-ambassador farmer training programmes with selected service providers for support.
- b. Document the training process and monitor the farmers through constant data collection and extension service.
- c. Develop market linkages for farmers online and locally with agri-ambassadors through strategic partnerships within the inclusive value chain.
- d. Develop farmer profiles online and implement the traceability software Agri-Chain for the produce so there is transparency and trust can develop in the market.

### Project proposal action items for year two

The desired outcomes for year two will be to develop the supply and demand ratio for the 5000+ selected farmers in Gauteng, Western Cape and KZN within the inclusive value chain.

**1. Farmer support and youth development**

- a. Mobilize agri-ambassadors to provide farmers with training and an extension service. With the use of the SAOSO standards, guide PGS endorsement and third party certification of fresh produce. Mobilize the agri-ambassadors over the 12-month period to support this process.
- b. Develop market linkage and refine the ethical value distribution downstream of

the value chain to the farmer and local businesses involved in the value chain.

- c. Establish agroprocessing and cold chain storage for the farmers. Activate the agri-hubs, with city collaboration, to best serve the smallholder farmers and surrounding communities.
  - d. Develop mentorship opportunities and microbusinesses to support the inclusive value chain with a focus on Youth in Agriculture.
- 2. Hold public engagements to discuss the findings of the data and mobilize the network**
- a. Facilitate public engagements and public discussion panels with partners.
  - b. Mobilize government engagement through OSSIC.
  - c. Organize a festival and number of micro-gatherings in collaboration with partners.
  - d. Branch out into other regions through the Izindaba Zokudla farmers' forum and YAI programme in collaboration with the University of Johannesburg.
- 3. Develop strong market access through the inclusive value chain with selected partners.**
- a. Establish and support new and existing PGS nodes.
  - b. PGS-SA to play a lead role and oversight of the establishment of the nodes.
  - c. Facilitate a relationship with selected retail and market participants through the inclusive value chain.
- 4. Develop shared services for the smallholder farmers.**
- a. Support smallholder farmers with logistics throughout the value chain with selected partners.
  - b. Broaden access to inputs through the supply of seedlings, compost, fertility solutions and most management solutions.
  - c. Integrate appropriate technologies to improve production capacity of smallholder farmers.
  - d. Broaden access to agroprocessing opportunities and 'value adds' for the smallholder producers.
  - e. Facilitate agroecological farmers to share knowledge with conventional farmers on soil degradation, effective water management, biodiversity, permaculture land design; this process will develop the capacity within the network to facilitate farmer-to-farmer knowledge sharing.

### Project proposal action items for year three

Year three will be the phasing out stage of the initial mentorship programme. It will entail reporting, through the monitoring and evaluation processes that were implemented over the period. Some outcomes will be:

1. *A coordinated value chain network* between smallholder farmers and market participants.
  - a. Supply and demand ratio will have been established between producers, retailers and consumers in the three selected provinces and the value chain will be expanding regionally.
  - b. Ethical pricing model will have been developed with the establishment of a farmer cooperative and market cooperative discussing pricing on certain commodities in the inclusive value chain.
  - c. Technology will have been successfully integrated into the supply chain and management of extension service will be streamlined with farmer support.
2. *Establishment of the export market* for smallholder farmers. This will include:
  - a. Identification of cash crops and commodities for the international export market, such as the UN PAGE Biopanza initiative.
  - b. Trade agreements with the global south and other African countries could be established in line with the current African Union 'Ecological Organic Agriculture Initiative'.
  - c. Integration of traceability and transparency software into the export value chain.
3. *Reporting and closure of project* including identifying further funding opportunities locally and abroad.
  - a. Although regular financial reporting will be built into the programme quarterly, monitoring and evaluation will take place throughout the programme.
  - b. Full reports will be assembled regarding the various deliverables from the associated working groups.
  - c. Regional chapters and PGS nodes will submit reporting documentation to SAOSO.
  - d. Full income and expenditure reports will be assembled.

A new, inclusive value chain can be developed building on the success of the PGS model. This value chain will include new entrants in a supported environment, where entrepreneurial endeavours will drive the development of localized economies, unlocking employment opportunities for youth and women in agriculture, and providing upstream mentorship opportunities with leaders in the sector. This paves the way for social participation in the formation of localized, regenerative economies and support for entrepreneurial activities and business creation.

Technology alone (e.g. synthetic fertilizers, agrochemicals, genetically modified seeds and irrigation) will not solve the problems of African food insecurity; it will not, as Jeffrey Sachs (2005) claims, 'End poverty in our time'. What is required is systematic capacity building of farmer institutions with farmer training using agroecological (low external input sustainable agriculture or LEISA) approaches. Together with this, it is vital to build market linkages, and to create consumer awareness of the importance of dietary diversity. A LEISA approach will assist in increasing dietary diversity, and agroecology will support improved agrobiodiversity, improved WUE and food sovereignty. Household food security will improve as small-scale farmers move to efficient subsistence farming, and the rural economies will start to develop as they move into semi-commercial farming. Government policies for sustainable rural development will have to understand these interrelated, complex truths, and if the SA Landbank is to live up to its mandate, it needs to develop supportive programmes for OA.

### Indicators of Sustainability

Diverse systems have been proposed for measuring agricultural productivity and sustainability; some have proposed 'sustainable intensification' as a desirable direction. Koohafkan *et al.* (2011) point out that many systems propose measures of intensification including:

- indicators to identify areas suitable either for intensification or for ecosystem services;
- indicators to assess the performance of the intensification process; and

- situational awareness indicators to capture different dimensions of intensification.

They comment that:

An apparent drawback of this proposal is that it identifies intensification (increase the production per area via the efficient use of inputs) as the only agricultural path for agricultural production, disregarding the diversity of other agroecological approaches that, instead of intensification, emphasize diversification, synergies and recycling.

(Koochafkan *et al.*, 2011)

The founding meeting of Regeneration International in Costa Rica in May 2015 noted that both the concept of 'sustainable intensification' and the idea of 'climate smart agriculture' have often been used to promote industrial agriculture while making minimal changes in production systems. Unless the food system changes to become more regenerative and more responsive to human needs of both producers and consumers, the health of both people and planet will continue to deteriorate. Regeneration International is working through scientists and activists to improve production and the food system.

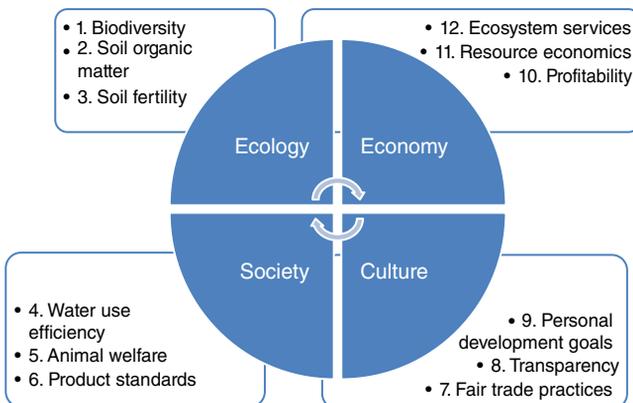
The SOAAN work took the Food and Agriculture Organization of the United Nations (FAO) indicators as a point of departure, and at the same time, FAO kept refining their indicators and their assessment tool (FAO, 2014). FAO's comprehensive guidelines, including 21 indicators grouped under 'Environment', 'Economy', 'Society' and 'Governance', now give a broad picture of sustainability. The FAO SAFA (Sustainability

Assessment of Food and Agriculture Systems) guidelines (Version 3.0) constitute a very useful tool for sustainability assessment, but the process is fairly data intensive, and the IFOAM work continued, specifically focused on the organic sector. After preliminary work by IFOAM, David Gould was appointed to manage a process of consultation. This resulted in the founders making some suggestions, and the appointment of a steering committee. In 2012, there was a series of meetings in Bonn (the 'Sustainability Days') at IFOAM headquarters, before the International Sustainable Development conference, also held in Bonn. The working group continued with drafts and redrafting based on public input, and tabled several versions for comment on the IFOAM website, and this too, became a fairly complex set of measures.

### Discussion of Proposed Indicators

Although the main work of SOAAN produced the well-known 'Blume' flower with 20 petals, showing 20 areas of sustainability measurement, the South Africans working at the Nelson Mandela University found this rather clumsy for farmers to use.

They amalgamated the sustainability measures into four themes ('Ecology', 'Economy', 'Culture' and 'Society'); this equates to a triple-bottom-line analytical tool, with 12 main measures, which overlap to some extent across the themes (Fig. 24.2). These farm-scale measures establish a baseline, and help the farmer to



**Fig. 24.2.** Twelve sustainability indicators clustered in four themes. (From Auerbach, 2015.)

measure change (positive or negative), and to set targets.

The proposed indicators are all measurable, and the intention is not so much to make up a set of desirable performance standards, but more to help a farmer to measure the progress of a given farm in the direction of sustainability. This should be backed up by support for the local ecology, positive contributions to society, enrichment of culture and contribution to the local economy. Indicators which ignore

what the farmer and farm family aspire to do will not result in improved sustainability. The farmer should be at the heart of the indicators (see Indicator 9 in Fig. 24.2), and if farmer aspirations and farm profitability are not adequate, the farmer will most likely leave the farm sooner or later.

More detail about these indicators is given in Box 24.1, after which, in conclusion, Table 24.1 offers a summary of a suggested programme for the organic sector in SA.

**Box 24.1.** Twelve measurable indicators of progress towards sustainable agriculture

1. **Biodiversity** is measured by: (i) variety (i.e. number of species); (ii) diversity (i.e. number of families); and (iii) rarity (i.e. number of endangered species).
2. **SOM** is measured by: (i) percentage of soil carbon; (ii) fraction of soil carbon which is active biomass; and (iii) an index of soil macrofauna actually present in the soil.
3. **Soil fertility** measured as change in N, P, K and pH, as an index of original soil status divided by desirable status, deducted from current soil status divided by desirable status.
4. **WUE** measured as the change in the ratio of crop production per unit of water used (current less original).
5. **Animal welfare** expressed as an index of original animal welfare index divided by desirable welfare index, subtracted from current animal welfare index divided by desirable welfare index. (This index will be calculated for each type of animal, and the proportion of each animal will be converted into numbers of large stock units and then expressed as fractions of the farm total.)
6. **Product standards** measured either as non-conformities with the local organic certification standards or, when possible, as a combination of nutrient density and toxic residue indices for each crop or animal produced.
7. **Fair trade indicators** measured as a worker satisfaction index comprising education, housing, safety, satisfaction, wages and dignity indices, together with a 'drudgery of work' index, as developed by Chand *et al.* (2015).
8. **Transparency index** measured by number of organizations with access to information about items 1–7 above; maximum score for this index is attained when all of these factors are published on the Internet (open access).
9. **Personal development goals** measured qualitatively as the extent to which the farmer feels that life is unfolding in a direction that is in line with what is desired.
10. **Profitability** is measured by expressing the farm gross margin (direct income less directly allocated variable costs) as a proportion of the farmer's desired return on investment (what the farmer would consider a satisfactory gross margin, bearing in mind all the investments of earlier generations, of the current generation, and the level of financial return which the farmer considers acceptable as a reward for all the effort of farming).
11. **Resource economics** measured as society's evaluation of whether the farm resources are being stewarded sustainably, and whether the farm is a useful resource for local people (e.g. as a local PGS or for local groups to have access to the farm for hiking, tree planting or educational activities).
12. **Ecosystem services** measured as the contributions of the farm to local water, biodiversity, amenity, and whether the farm impacts positively or negatively on local ecosystems.

A technical support service needs to be established to support the scientific work and to carry out monitoring and evaluation for the sector, as requested by farmers at all three consultative workshops during 2018. Time horizons are provided in conclusion as a summary of what needs to be done. These should be developed into a logical framework analysis for the sector, with smart indicators for each activity.

**Table 24.1.** Time horizons for sector planning: 1 year, 5 years, 10 years.<sup>a</sup>

Area of intervention	Horizon		
	1 year	5 years	10 years
Government	Organic and Agroecology Policy	Teacher training agriculture	DAFF organic extension
Farmer training	Identify 50 trainees, 35 of whom should be women	Train 500 farm women and 200 men	2000 Organic farmers
Quality management	Set up nine provincial PGS offices	Provincial PGS support for 30 PGS groups	Support for 60 PGS groups and five agrihubs
Market development	Develop organic agrihub in George	Start organic agrihub system	Five agrihubs
Food education	Recruit nine provincial food educators	Train teachers in 100 schools	Teachers in 1000 schools
Weather shocks	Identify climate-vulnerable areas	Implement water efficient gardens	30 Water wise gardens
Capacity building	Set up SAOSO offices in Gauteng and Western Cape, then roll this out so there are a total of nine such offices	Technical quality management linkages set up	10,000 Farmers linked to market apps
Technical support	Set up a soil analysis laboratory to apply results of research	1000 Samples establishing soil database for SA	3000 Samples monitoring soil fertility change
Local certification	Establish Afrisco SANAS	200 Clients	1000 Clients
Research (technical)	Restart Mandela Trials	Work with postgraduate researchers and universities	25 Research projects covering: food quality, food education, training, WUE, product markets
Research (capacity)	Set up a database for organic-sector farmers	Involve farmers with sustainability indicators	Report on progress to sustainability
Research (policy)	Set up political lobby groups for sustainable food systems	Operationalize organic and agroecology policies, local food systems	Mainstream organics as developmental agriculture

<sup>a</sup>DAFF, Department of Agriculture, Forestry and Fisheries; PGS, Participatory Guarantee System; SA, South Africa; SANAS, South African National Accreditation Service; SAOSO, South African Organic Sector Organisation; WUE, water use efficiency.

## Conclusion

This book has examined many aspects of food systems, climate change and farmer support and development. We conclude that a grass-roots movement has started to make food systems more sustainable, and to improve food sovereignty in Africa. This movement needs support: (i) it needs volunteers; (ii) it needs funding to set up professional support systems; (iii) it needs publicity; and (iv) it needs informed consumer

movements. Already GMO and poison-free zones are emerging in SA, and training, technical support and market linkages are developing. Communication and innovation are dynamic properties, and the organic sector will need to build with consumers, identifying what they want, helping to educate young people about food choices, and responding to the critiques of well-informed clients. Agroecology is the future; the Grow Food movement is growing worldwide (see the recent film of that name by Jessica Smith and Joe Rignola);

regenerative agriculture is becoming a widespread, unifying philosophy; the organic movement, as pioneer of sustainable food systems development, with standards, marketing systems and better technical support, will remain at the centre of this mass mobilization for Mother Earth. Already as a result of the research in this book and the Ecological Organic Agriculture (EOA) Initiative, the African Union has appointed Professor Raymond Auerbach to assess how EOA

can be mainstreamed in 47 African countries of North, West, Central and Southern Africa, to match the progress already underway in East Africa. This assessment gathers the evidence presented in this book, summarises the situation in each of the 47 countries, and proposes a detailed way forward for each of five types of African countries. The assessment will be presented to the EOA Initiative Continental Steering Committee in Accra, Ghana in November 2019.

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