

**CASE STUDIES: EXPLORING
AN AGROECOLOGICAL
APPROACH TO AGRI-FOOD
SYSTEMS IN ZAMBIA**



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About this paper

The Southern African Faith Communities' Environment Institute (SAFCEI) commissioned a series of research papers focused on agroecology in South Africa, Tanzania, Zimbabwe and Zambia. This paper provides an overview of the state of the agri-food system in Zambia and the potential provided by an agroecological framework as a response to current challenges of ecosystem degradation, climate change and malnutrition. The desktop research is supported by primary research in the form of two case studies. SAFCEI aims to use this work to further deepen its understanding of the linkages between climate and food justice in Africa and to support the generation of advocacy material and practical recommendations it can offer to its members.

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ACRONYMS

AFSA	Alliance for Food Sovereignty in Africa
FANRPAN	Food and Agriculture Organization
FAO	Food and Agriculture Organization (United Nations)
FISP	Farm input subsidy programme
HLPE	High Level Panel of Experts
IFOAM	International Federation of Organic Agricultural Movements
KATC	Kasisi Agricultural Training Centre
PGS	Participatory Guarantee Systems
PELUM	Participatory Ecological Land Use Management
SAFCEI	Southern African Faith Communities’ Environment Institute
SKI	Seed and Knowledge Initiative
UNDP	United Nations Development Programme
ZAAB	Zambian Alliance for Agroecology and Biodiversity

EXECUTIVE SUMMARY

Zambia's agri-food system is distorted towards the provision of maize as a staple food to the detriment of more nutritious crops. The country is undergoing a rapid nutrition transition towards calories drawn from fats, oils and starches. As a result, there is significant malnutrition, undernutrition and overnutrition in the country.

Zambia's government supports the industrial agricultural model that is characterised by monocropping and extensive use of external inputs (synthetic fertilisers and agrochemicals), and one orientated towards yields as indicators of farming success. This model is known to drive soil degradation, biodiversity loss and nutritional insecurity. It is doing so in Zambia.

Agroecology provides a multi-faceted response to Zambia's most pressing challenges – particularly nutritional insecurity, biodiversity loss and climate change. It does this through implementation of its 10 elements, which span production, economic and social aspects. It is a transformative approach that can adapt to different contexts, it focuses on bottom-up leadership from farmers and food producers, and it emphasises collaborative knowledge generation and exchange.

There is a particular focus in this paper on market access, as an enabler of success for agroecological producers.

The case studies focus on Loctaguna Organics, a private, commercial organic farm and a collective farming endeavour on the grounds of the Kasisi Agricultural Training Centre (KATC) in Lusaka, Zambia.

Key findings

- Market access can be determined by location, access to transport and marketing experience.
- There is a need for consumer education on the benefits of and need for agroecological farming. This will help to create market demand for agroecological produce, and support price differentiation in the market.
- The concept of the market needs to be reimagined as spaces of more than economic exchange, but also spaces of social connection, knowledge exchange and collaborative enterprises.
- Agroecology encourages a shift beyond a focus on production to incorporate elements such as knowledge co-creation and exchange and support for circular and solidarity economies. This is often done by offering training, by participating in national and regional networks, by participating in participatory guarantee systems (PGS), operating in shorter farm-to-fork value chains and by being vocal advocates for sustainable agri-food systems that can deliver safe, nutritious and affordable food for all.



1. INTRODUCTION

Zambia's agri-food system is not delivering the diversity of foods needed for its citizens to sustain a healthy lifestyle. The country was classified as the "third hungriest in the world" in 2016 (Lincoln, 2018). It is also amid a nutrition transition with rising levels of overnutrition.

As with many African countries, Zambia's agri-food system has been shaped by colonisation and, following independence, the structural adjustment programmes mandated by the World Bank and International Monetary Fund as loan conditions. This has oriented the agri-food system towards a privatised, industrial production model – with negative effects on the environment.

The country's farmers are categorised as 8% commercial farmers, 17% emerging farmers and the balance smallholder farmers mostly practising subsistence agriculture on less than two hectares of land (Mwanamwenge & Harris, 2017). Smallholder farmers, despite producing the bulk of the food consumed in Zambia, face barriers to market entry, including poor infrastructure (roads, rail, etc.) and they tend to lack collective bargaining power (Mwanamwenge & Harris, 2017).

There is an urgent need for transformation within Zambia's agri-food system to enable it to deliver nutritious and affordable food for all, while not harming the planet.

This paper provides an overview of the current state of Zambia's agri-food system and positions agroecology as a suitable framework for the country – with a particular focus on markets. It uses two case studies (one privately owned urban farm in Lusaka and one peri-urban farming collective on the

outskirts of the city) to highlight the potential of agroecology to act as a transformative lever for system change. because it acts at multiple levels – production, social and economic – and is at its core an emancipatory approach focused on building the agency of food producers and consumers.

2. CHARACTERISTICS OF ZAMBIA'S AGRI-FOOD SECTOR

There are historical and current drivers that have orientated Zambia's food system towards this current dysfunctional state. These include the introduction of maize to the continent by slave traders who used it as durable grain for their long voyages and later by colonial governments as a grain that was easily transportable to feed workers in cities and mining areas (Mwanamwenge & Harris, 2017). It has been positioned as a 'modern' grain and some claim that maize and its production under intensive conditions (like monocropping) is linked to an entrenched narrative of modernity and 'good' farming (Mwanamwenge & Harris, 2017). Maize is significantly supported through the government's farm input subsidy programme (FISP) even though, according to evidence, these do not support the attainment of food security, and they actively encourage lower dietary diversity (Mwanamwenge & Harris, 2017).

Zambia, as with most African countries, has also undergone the World Bank and the International Monetary Fund's now discredited structural adjustment programmes following independence.

These programmes enabled the opening of markets to global trade and radically decreased public spending on public goods – like the food system. Combined with poor policy implementation and insufficient capacity and budget, the ability of the country's agri-food system to provide nutritious food has declined over the past few decades.

2.1 Status of base of production

Human activities are driving degradation of soils, ecosystems and water bodies in Zambia. The expansion of agriculture is responsible for 90% loss of forest cover; each year 6% of forests are lost (Mabeta et al. 2018). Twelve forest reserves have been stripped of legal protection in the past decade (Mabet et al. 2018). Industrial-style cultivation (monocropping, use of agrochemicals) – even at the smallholder scale – is a significant contributor to land degradation, as it contaminates food sources for all species and poisons the land and water bodies (Mabeta et al. 2018). A 2019 survey in Ghana, Rwanda, Uganda, Zambia and Zimbabwe in 2019 found a direct correlation between FISPs and increased pesticide use, up to 10% (African Centre for Biodiversity, 2020).

Foreign demand for specific types of timber (African rosewood and Zambezi teak, for example) is also driving demand for timber, and thus deforestation (Mabeta, 2018). Poaching and unsustainable harvesting practices are spurring on resource degradation. Mining companies are operating illegally in national parks and game reserves, with few consequences and the effluence from mining operations is seeping into the land and into water sources (Mabeta, 2018). Invasive alien species (like water hyacinths) are the second biggest driver of biodiversity loss – they can outcompete local species, possibly driving some to extinction (Mabeta, 2018). There is inadequate funding of biodiversity protection and limited government capacity to oversee infringements (Mabeta 2018).

2.2 Market dynamics

The agri-food sector is primarily driven by the private sector – through distribution and retail of agricultural inputs, provision of technical expertise, post-harvest processing and distribution (Mwanamwenge & Harris, 2017). Most licensed seed inspectors work for private companies (Zambian Alliance for Agroecology and Biodiversity (ZAAB) 2020). The formal input market is concentrated with multinational corporates like Syngenta, Bayer-Monsanto, BASF and Hoechst dominating seed and other agrochemical sales (Minnaar et al. 2019). A consequence of this is that seed research and breeding focus on maize and vegetable seeds for high-value markets.

This marginalises seed research and breeding of farmer and indigenous seed – and as commercial seeds are supplied for free or at a subsidised cost through the FISP, there is increased uptake of these seeds and a resultant loss of farmer varieties. It also decreases the diversity of seeds available (Mwanamwenge & Harris, 2017), and thus the diversity of food produced. While most food is still purchased through informal market channels, the number of local and foreign-owned branded supermarkets is growing, particularly in more urban areas (Mwanamwenge & Harris, 2017).

3.1 Outcomes of the system

Hunger and malnutrition

Zambia's agri-food system does not deliver food and nutritional security for its people. Almost half the population experiences hunger at some point in the year and 40.1% of children under the age of five are stunted (Mwanamwenge & Harris, 2017). Of these, 40% are stunted, 15% are underweight and 15% have anaemia (Lincoln, 2018). The country is experiencing the double burden of both under- and overnutrition as it undergoes a nutrition transition.

This is not only being driven by urbanisation, but also a loss of nutritional options in rural areas. About 60% of poor households are eating less than 5 of 12 food groups and about a fifth are unable to eat their preferred foods because they could not find or afford them; diets are low in calories from fruit, vegetables and meat, and high in calories from maize (Mwanamwenge & Harris, 2017).



A 2017 report notes that about 80% of Zambian farming households are cultivating three or less crops and the availability of fats, oils and starchy foods has doubled since 1971 (Mwanamwenge & Harris, 2017). Obesity is also growing – 23% of women are considered overweight as result of poor diets and non-communicable diseases are on the rise (Mwanamwenge & Harris, 2017).

Less resilience to climate change

The industrial agricultural model contributes significantly to climate change, while reducing farm and surrounding ecosystems' ability to adapt to climate change. About 75% of greenhouse gas emissions originate from the global agri-food system – 39% of that originates from the production and use of agrochemicals (Food and Agriculture Organization [FAO], 2021).

The balance is changes in land use (38%) and distribution of food products (FAO, 2021).

Climate change is already affecting Zambia through extended droughts and dry spells, extreme temperatures and flooding (Food, Agriculture and Natural Resources Policy Analysis Network [FANRPAN], 2017). The mean annual temperature has increased by 1.3 degrees Celsius since 1960 (FANRPAN, 2017). This has significant implications for farmers practising rainfed agriculture in the country.

The Zambian government has responded by providing support for conservation agriculture, which focuses on building soil's ability to absorb more carbon (FAO & United Nations Development Programme [UNDP], 2020).

A key challenge though is that minimal or no-tilling practices in conservation agriculture tend to result in a proliferation of weeds. In Zambia, its uptake is linked to a radical increase in the use of herbicides, in particular glyphosate (FAO & UNDP 2020). Agrochemicals have known negative impacts on ecosystem health.

They kill non-target insects, birds, organisms and animals (Horak et al., 2020) – this has implications for pollination and the existence of beneficial insects, and they pollute soils and water bodies. The industrial agri-food system is destroying the very ecosystems needed to weather climate change and continue producing food.

3. AGROECOLOGY AS A TRANSFORMATIVE RESPONSE

Agroecology is a transformative approach to farming and food systems that can deliver nutritious, safe and affordable food for all, without damaging the planet (Agroecology in Action, 2022).

This approach is an innovative way of combining science, lived experience and local and traditional knowledge to “study, design, manage and evaluate agricultural systems that are productive but also resource conserving” (Agroecology in Action, 2022:1).

For those that practice and/or advocate for agroecology, the approach also encompasses social and political aspects. As a set of practices, agroecology uses natural processes to create beneficial biological interactions that enhance farming productivity while minimising damage to the environment (Wezel et al., 2020). As a social movement, agroecology provides a solution to malnutrition by delivering a greater diversity of foods with higher nutritional content (Wezel et al., 2020) and generates higher returns for the farmer working in short value chains.

It also combats the effects of climate change by lowering greenhouse gas emissions (mitigation) and building more resilient farming systems (adaptation). And it works to make the agri-food system more equitable, inclusive and fair for both producers and consumers (Wezel et al., 2020).

There are 10 elements of the agroecological approach, decided on through a global multi-stakeholder consultation process undertaken by the FAO in 2014. These are diversity, co-creation of knowledge, synergies, efficiency, recycling, resilience, human and social values, culture and food traditions, responsible governance, and circular and solidarity economy (Wezel et al., 2020). The elements can be divided into contextual features (human and social values, culture and food traditions), characteristics of and practices within agroecological systems (diversity, synergies, efficiency, resilience, recycling, co-creation and sharing of knowledge), and enabling features (responsible governance, circular and solidarity economy) (FAO, 2018).

There an emphasis on putting the “aspirations and needs of those who produce, distribute and consume food at the heart of food systems” (FAO, n.d.:1). This means focusing on dignity, inclusion, equity and justice through building autonomy of farmers and communities, promoting the right to food and ensuring access to genetic resources (FAO, n.d.). There is a particular emphasis on creating opportunities for women and youth, ensuring that they are included in both the economic opportunities available in farming and in decision making (FAO, n.d.). The elements, their associated practices and beneficial outcomes are described on the following pages.

3.1 What would a sustainable agri-food system look like?

The elements of agroecology provide a contextual, flexible framework for the agri-food system encompassing social, ecological and economic elements. In particular, the system needs to (SAFCEI, 2021):

- **Encourage and support the use of local and improved crop varieties and livestock breeds** to enhance genetic diversity. This work must be done in collaboration with farmers to ensure alignment to their needs and to support resilience building.
- **Eliminate agrochemicals in production systems**, along with other technologies that pose a risk to human and environmental health, such as genetically modified crops and insects.
- **Focus on more efficient use of resources** to make the most of what we have and ensure that resources are available to future generations, as well as reducing farmers’ dependence on corporate supply of inputs.
- Embrace practices that **conserve and enhance biodiversity, sequester carbon** and **ensure the availability of potable water**.
- **Acknowledge agricultural heritage systems** that foster social cohesion; this means recognising and actively applying Farmers' Rights and including farmers in co-production of knowledge.
- **Reduce the carbon footprint** of production, distribution and consumption, which will also reduce soil and water pollution.
- Actively **strengthen adaptive capacity** within communities to external shocks, including climate change.
- **Promote democratic governance** of natural resources to generate an equitable and inclusive system.

Elements of agroecology, practices and beneficial outcomes

Element	Associated practices	Beneficial outcomes
1. Diversification <ul style="list-style-type: none"> Maintaining and enhancing genetic diversity of species and ecosystems Supporting diversification of income streams 	<ul style="list-style-type: none"> Intercropping and crop rotation Crop and livestock farming 	<ul style="list-style-type: none"> Builds adaptive capacity to external shocks, including climate, market and pests and diseases Supports diversified income streams through sales of multiple products enabling greater financial independence Generates greater volumes of micro- and macronutrients, contributing towards nutritional security Farming livestock provides meat, an additional source of income and manure for composting Supports ecosystem services such as pollination, air purification and soil health
2. Co-creation of knowledge <ul style="list-style-type: none"> Enhancing co-creation and horizontal sharing of knowledge, especially through farmer-to-farmer exchange 	<ul style="list-style-type: none"> Promoting the inclusion of agroecology in educational curricula at all levels Developing capacity for systems thinking to cope with an increasingly complex world Participatory, farmer-led research Needs-based academic research 	<ul style="list-style-type: none"> More holistic understanding of agri-food systems Farmers and their needs elevated rather than marginalised
3. Synergies <ul style="list-style-type: none"> Putting in place systems that enhance synergies (positive ecological interactions) Enhancing complementarities in agro-ecosystems 	<ul style="list-style-type: none"> Using natural features (hedges, ponds, flowers, etc.) to perform functions such as windbreaks, pest deterrents, pollinator attractors. 	<ul style="list-style-type: none"> Reduces input and infrastructural costs
4. Efficiency	<ul style="list-style-type: none"> Nutrient recycling by planting leguminous crops to fix nitrogen and other crops and flowers with nutrient-fixing or depositing characteristics. Water recycling 	<ul style="list-style-type: none"> Saves costs Saves on resource use, particularly external resources
5. Recycling <ul style="list-style-type: none"> Using local, renewable resources Making closed loop cycles 	<ul style="list-style-type: none"> Using animal manure with biomass and green manure to make compost instead of buying in fertilisers 	<ul style="list-style-type: none"> Cuts down on use of external resources, and thus costs Helps to support closed loop systems
6. Resilience <ul style="list-style-type: none"> Designing the farm to protect from extreme events 	<ul style="list-style-type: none"> Using permaculture design principles incorporating hedges, trees and natural windbreaks 	<ul style="list-style-type: none"> Helps to weather external shocks and enable continued production

Element	Associated practices	Beneficial outcomes
7. Human and social values	<ul style="list-style-type: none"> • Social values and diets: food systems based on the culture, identity, tradition, social and gender equity of local communities that provide healthy, diversified, seasonally and culturally appropriate diets • Fairness – support dignified and robust livelihoods for all actors engaged in food systems, especially small-scale food producers – fair trade, fair employment and fair treatment of intellectual property rights 	<ul style="list-style-type: none"> • Enables shorter supply chains built on trust and transparency
8. Culture and food traditions	<ul style="list-style-type: none"> • Growing local and indigenous crops • Celebrating the culture in agri-‘culture’ 	<ul style="list-style-type: none"> • Enables food sovereignty and reclamation of autonomy
9. Responsible governance <ul style="list-style-type: none"> • Strengthen institutional arrangements to improve recognition and support of family farmers, smallholders and peasant producers as sustainable managers of natural and genetic resources 	<ul style="list-style-type: none"> • Democratic decision-making processes • Membership of a PGS or other networks that elevate the voices of farmers 	<ul style="list-style-type: none"> • Inclusive, democratic governance mechanisms • Support for local and regional food systems • Contextual and varied governance systems that are fit for purpose
10. Circular and solidarity economy	<ul style="list-style-type: none"> • Encourage social organisation and greater participation in decision-making by food producers and consumers to support decentralised governance and local adaptive management of agricultural and food systems • Enable proximity and confidence between producers and consumers through fair, short distribution networks and re-embedding food systems into local economies 	<ul style="list-style-type: none"> • Shorter and cleaner value chains • Diversified markets • Higher incomes for producers

Source: FAO 2018; Wezel et al. 2020

The High Level Panel of Experts (HLPE) on Food and Nutrition advise that there are cross-cutting elements necessary for large-scale transformation of the food system. These are inclusive and participatory forms of innovation governance, information and knowledge co-production and sharing among communities and networks, and responsible innovation that steers innovation towards social issues (HLPE, 2019).

3.2 Agroecology in Zambia

There is significant civil society organisation support for agroecology in Zambia with consistent advocacy undertaken to government to shift agricultural policy towards agroecological principles.

Leading organisations in this regard are KATC, ZAAB, Participatory Land Use Management (PELUM) Zambia and a host of other networks. Many of these also belong to the regional Alliance for Food Sovereignty in Africa (AFSA) platform.

AFSA is actively campaigning for government support for agroecology on the continent. Its latest campaign positions agroecology as a response to the climate crisis. It undertook country-level research to inform its campaign. One of these countries was Zambia. The campaign focused on “creating an understanding of existing climate change-related policies, plans, strategies, regulations and frameworks at national level” and identifying entry points for mainstreaming agroecology into policy frameworks (AFSA & ZAAB, 2021:1).

The Agroecology Fund is supporting the regional Seed and Knowledge Initiative (SKI) and South African-based Biowatch to work with local partners in Malawi, South Africa, Zambia and Zimbabwe on a project titled Collaborating towards landscape level agroecology in Southern Africa. Zambian partners include KATC. The grant of United States \$120 000 will be spent over 18 months to foster a holistic approach that builds agency,

heals relationships and deepens connections between people and nature (Agroecology Fund, 2022). In 2021, the first phase of the Fred M'membe Literacy and Agroecology Campaign was launched. The campaign, coordinated by the Samora Machel Internationalist Brigade and the Socialist Party, aims to teach 2 000 rural and urban workers to read and write in English (MST, 2021). The campaign makes the linkages between education (literacy), decolonisation and the "construction of a new project for society that permeates production and reproduction of rural life with the production of healthy food" (MST, 2021:1). It aspires to not only teach literacy, but to change food production systems to ones using healthy agroecology practices (MST, 2021).

Beyond dedicated campaigns, organisations such as PELUM Zambia and ZAAB – both network organisations – petition government on an ongoing basis to argue for agroecology. While the country's agricultural policies recognise the importance of smallholder farming and of sustainable farming, policy support remains geared towards the industrial agri-food model.

This paper uses two case studies (Loctaguna Organics and KATC) to illustrate the multiple benefits of an agroecological approach to farming. This is because agroecology extends beyond production to implementing new market mechanisms that are inherently fairer to both producers and consumers.



4. A FOCUS ON MARKETS AS ENABLERS OF A TRANSITION

Market access is cited as a key constraint for smallholder farmers. Reasons include distance from market (and lack of transport and adequate storage), lack of knowledge about markets and market pricing, and bottlenecks to entering formal food retail value chains. This can be due to the need to reliably produce at scale, to produce to uniform standards, and to comply with strict phytosanitary regulations (which can be expensive and administratively burdensome).

Food sovereignty activists note that food should be produced for people and not for markets, arguing that people should be able to control their own food systems, aligned to their food values and culture (Borsellino et al., 2020).

Borsellino et al. (2020) review approaches to agricultural markets. They note that markets are mechanisms that determine what is produced, and the value of what is produced (Borsellino et al., 2020). The exchange of value that happens in markets (whether they are global commodity markets or localised food markets) is determined by 'rules' set through government regulations, private contracts, cultural customs and public norms (Borsellino et al., 2020). Agri-food markets stretch through 'time and space' encompassing all activities along the value chain (Borsellino et al., 2020). As a result, they perform functions beyond economic exchange of value but also speak to social and political dimensions.

The global agri-food system is based on the industrial model of production with distribution, marketing and retail occurring within a neo-liberal economic framework in pursuit of profit. A driver of this model is globalisation that has created a uniform, single market significantly exposed to global shocks (Borsellino et al., 2020).

The liberalisation of global food markets has created an environment of competition, and the winners are those able to deploy economies of scale (Borsellino et al., 2020). This, in turn, has driven concentration in the sector (Borsellino et al., 2020), further restricting entry to smaller actors, such as smallholder farmers and processors. Access to this market is very dependent on strong physical, economic and intellectual capital (Borsellino et al., 2020) and so the countries of the Global South tend to be disadvantaged. In this system, 'ingredients' of food are moved around the world with consumption typically happening far from the base of production. This has resulted in increasingly complex food safety requirements (Borsellino et al., 2020) – which are then also imposed on localised producers with short chains to market despite it not being always necessary at this scale.

The market must also deliver dietary diversity. The devastating nutrition transition happening in Africa as more people live in cities and thus access high-calorie, low-nutrient processed foods would imply that the globalised, neo-liberal agri-food system does not deliver dietary diversity.

Sadly, even rural markets appear to not be delivering dietary diversity – primarily because of FISPs that have orientated production towards maize. An agroecological approach to farming would resolve this issue as intercropping and multi-cropping are key production principles.

There is a need to reimagine the market so that it not only provides for nutritional and food security, but also helps to bring about more equitable and inclusive social and economic relationships.

AFSA (2020) notes that African 'mass markets' are a legitimate avenue for agroecological farmers. These markets – typically offering vegetables, fruits and meat – are inclusive spaces that attract a diversity of people from different socioeconomic brackets, classes and cultures (AFSA, 2020). They note that these market spaces tend to embrace indigenous commerce principles that focus on knowledge exchange and wellbeing, along with the selling of food for money (AFSA, 2020). Mass markets tend to be in places of confluence – alongside roads and at borders (AFSA, 2020).

It is time to look outside of the formal value chain for market spaces and opportunities if we truly want a different agri-food system to what we have now.

Agroecological farmers face several challenges in accessing markets. There is low consumer awareness of the damage caused by the industrial system to their health, and that of the planet.

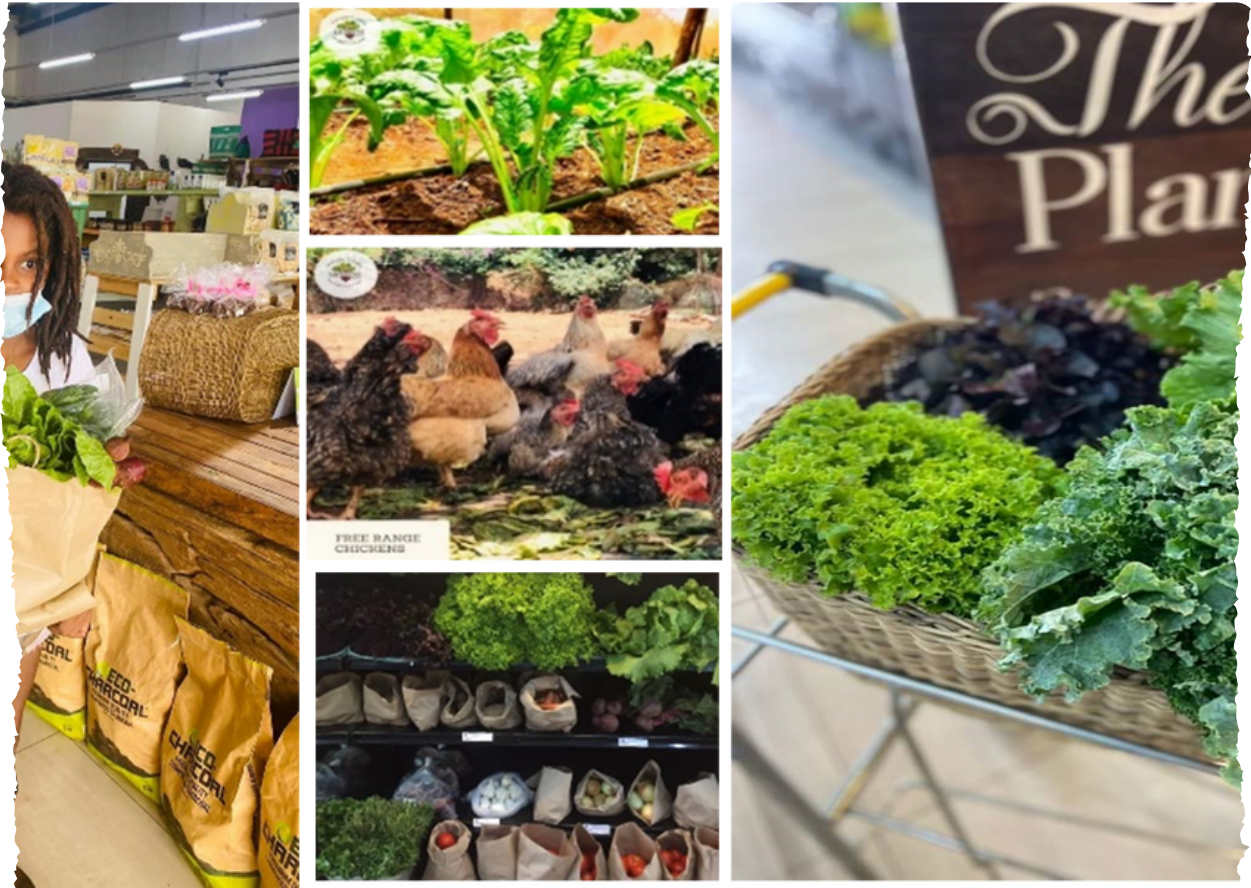


Consumers do not perceive agroecology as a differentiator, and, in most African countries, they are not willing or able to pay more for sustainably produced food. The cost of agroecologically produced food does tend to be higher because farmers do not receive the same level of government support through the FISPs (AFSA, 2020); environmental costs are not externalised in this model; and yields – while more diverse – can be lower.

There is an urgent need for consumer education that highlights the damage done to human and environmental health by the industrial model. This includes biodiversity loss, reducing the ability of ecosystems to adapt to climate change; pollution of the air, soil and water; and damage to human health through pesticide residues and consumption of low-nutrient foods.

Glyphosate, for example, is the most used herbicide in the world and it is not removed from food through processing (Cancer Association of South Africa, 2019). It is known to cause respiratory problems, neurological and cardiovascular problems, among others (Anakwue 2018). A study undertaken in France notes a significant reduction in the risk of cancer among consumers of organic food (Baudry, Assmann & Touvier 2018).

AFSA (2020:iv) notes that “mass markets show that agriculture is not just about yields but understanding the entire food ecosystem” – they are “about inclusiveness, equality, and collective empowerment”. Against this backdrop, the paper explores two case studies with a particular focus on market access.



5. CASE STUDY: LOCTAGUNA ORGANICS

5.1 About Loctaguna Organics

Loctaguna Organics was established in 2010 on private land owned by Kanangwa Newlove and her husband. It is a formally registered for-profit company. The farm produces seasonal organic vegetables for market purposes on a farm in Lusaka, Zambia. The farm is a privately-owned and formally registered company that employs both full-time and part-time staff. Staff include farm labourers and cleaning and packaging personnel, along with drivers. The company is liable for tax and other regulated costs.

Owner and manager Kanangwa Newlove had more than a decade's experience in business and marketing before turning her hand to farming.

She has a Bachelor of Arts in public administration and sociology and several certificates in marketing, including social media marketing. In her professional career prior to becoming a full-time farmer, she worked as a sales and marketing manager for Seba Foods and for Community Markets for Conservation in Lusaka.

Kanangwe is passionate about sustainable food systems and on a mission to make sustainably grown food available to consumers throughout the value chain. She is a member of the International Federation of Organic Agricultural Movements (IFOAM) Ecological Organic Agriculture Leadership Course and is regularly invited as a speaker to workshops focused on agroecological agriculture.

5.2 An agroecological approach

Since inception, the farm has used organic production principles to produce crops for market with crop selection based on market demand.

Contextual features

Contextual features of agroecology include human and social values as well as culture and food traditions.

AGROECOLOGICAL ELEMENT	LOCTAGUNA ORGANICS ACTIVITIES
Human and social element	<ul style="list-style-type: none"> • Is a focus on human health in marketing of the farm
Culture and food traditions	<ul style="list-style-type: none"> • Participates in the annual Zambia Traditional Food and Seed Festival

Characteristics and practices

Characteristics and practices include diversification, synergies, efficiency, resilience, recycling, co-creation and sharing of knowledge. The table below provides an overview of what Loctaguna Organics undertakes in each of these areas.

AGROECOLOGICAL ELEMENT	LOCTAGUNA ACTIVITIES
Diversification	<ul style="list-style-type: none"> • Crop rotation – to maintain soil health and boost biodiversity • Multi-cropping – to meet market demand • Multiple income streams – vegetable sales and training • Mulching to protect and feed the soil
Synergies	<ul style="list-style-type: none"> • Livestock (pigs, goats and chickens) incorporated into production as a source of manure • Herbs, marigolds and moringa trees plants to attract beneficial insects (bees and ladybirds in particular) • A forest design used for the farm incorporating trees and shrubs
Efficiency and recycling	<ul style="list-style-type: none"> • Composting is done on site (layered and in beds) using livestock manure and available biomass • Home-made remedies used as a first line of defence against pest and diseases • Borehole water used – is a cost centre because of electricity costs to run the pump • Reliant on municipal supply of electricity
Resilience	<ul style="list-style-type: none"> • Focus on keeping the soil healthy to help fight diseases. Most prevalent problem is fungal disease in rainy season – home-made remedies used as an initial response with commercial bio remedies as a last resort • Borehole water used • Expressed need for shade cloth to protect crops against extreme weather events
Co-creation and knowledge sharing	<ul style="list-style-type: none"> • Part of a PGS group – Ubumi – along with other commercial organic growers in Lusaka • Member of ZAAB • Part of wider continental networks through the IFOAM Ecological Organic Agriculture Leadership Training Course • Offers training courses to support knowledge exchange and sharing to help scale uptake of organic agriculture

A note on Participatory Guarantee Systems

A PGS is an inclusive, transparent and accessible way for smallholders to 'certify' their produce as organic. A PGS comprises farmers, consumers, retailers and other interested parties that collectively inspect the farm against agreed upon organic standards to provide assurance that standards have been met. It not only provides this assurance to market but is also a vehicle for empowering farmers, enabling shorter market linkages and capacitating farmers to engage with local governments. PGS is a growing global system that is suitable for smallholder farmers.

Enabling features

Enabling features encompass responsible governance and building a circular and solidarity economy. The table below provides an overview of what Loctaguna Organics undertakes in each of these areas.

AGROECOLOGICAL ELEMENT		LOCTAGUNA ACTIVITIES
Responsible governance		<ul style="list-style-type: none"> The company is part of a PGS, which has a flat and transparent governance structure
Circular and solidarity economy		<ul style="list-style-type: none"> Contributes to shorter supply chains between producers and consumers Actively advocates for uptake of agroecological agriculture through presentations, social media and in market spaces

5.3 Access to markets

Loctaguna Organics has successfully created a market for itself in Lusaka, and one willing to pay for organic food. This is likely due to the owner's business and communications skills that have enabled her to create a brand that has attracted a loyal following. In support of an agroecological approach, Loctaguna is also a demonstration space with a training offering that supports the co-creation and sharing of knowledge between farmers and with consumers. The preferred market is the formal retail market because it supports stable cash flow compared to other markets. Customers are mostly drawn from middle- to upper-income groups; they are buying for health, among other, reasons.

To a large degree, the success of this farm can be credited to the knowledge, passion and business sense of its owner. In her personal capacity, Kanangwa is also an IFOAM Ecological Organic Agriculture leader taking part in seminars, workshops and media events.

The farm does face challenges. Kanangwa notes that government could encourage banks to provide loans with lower interest rates because agroecology contributes to solving some of the country's biggest challenges. Access to more affordable finance would enable her to make the farm more resilient through the installation of infrastructure such as solar energy and shade cloth to protect crops from extreme weather conditions.



6. CASE STUDY: KATC

6.1 About KATC

KATC is a farm and farmer training centre that aims to empower rural communities to improve their livelihoods and facilitate holistic and democratic rural development through training, extension, research, market development, lobbying and advocacy and appropriate technologies in sustainable agriculture.

It was founded in 1974 under the management of the Society of Jesus (Jesuits). It is governed by a Board of Trustees and has a staff of 25 people plus 50 support personnel. Staff members include those with expertise in soil science, agronomy, agro-processing, economics, extension, organic certification and production. KATC has grown into a multi-faceted

organisation that derives income from a diversity of activities. This includes undertaking research and advocacy work, providing on-site training and extension services, producing food and livestock for market, and processing of dairy products into yoghurts and cheeses.

Organic products produced on a commercial scale include barley, wheat, oats, soya beans, sunflower, sunhemp and open pollinated maize variety. And certified as organic under PGS are millet, sorghum, groundnuts, bambara nuts, cowpeas, mung beans, rice beans, pigeon peas, velvet beans, pumpkins, indigenous squash, cassava, sweet potatoes and moringa.

KATC researches sustainable organic agriculture technologies and practices, including verification trials of indigenous and exotic technologies and generation trials to test new ideas. It also offers short courses on a range of agricultural topics – aimed at smallholder farmers, teachers, extension staff, lead farmers and traditional leaders. These courses include cross-cutting issues, such as climate change and HIV/Aids. Follow-up extension services are provided to those who attend trainings. In addition, about 30 demonstration plots are set up in two districts each rainy season field days held in February/March each year. KATC also participates in a weekly radio programme with the Yatsani community radio, among others.

KATC played a key role in facilitating a workshop in 2013 to develop an organic agriculture strategy, submitting the subsequent report to the Ministry of Agriculture and Livestock. It is currently an in-country partner to the Knowledge Hub for Organic Agriculture alongside PELUM Zambia.

The Knowledge Hub for Organic Agriculture in Southern Africa is part of the Knowledge Centre for Organic Agriculture in Africa, a collaborative country-led partnership funded by the German Federal Ministry of Economic Cooperation and Development and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH and non-governmental organisations across Africa. The project aims to scale up adoption of organic farming practices through five knowledge hubs in Africa.

The 128-hectare property is also home to a group of 100 smallholder farmers who practice organic production on a dedicated section of land. This case study focuses on this group, in particular their access to market.

6.2 An agroecological approach

Since inception, the farm has used organic production principles to produce crops for market with crop selection based on market demand.

Contextual features

Contextual features of agroecology include human and social values as well as culture and food traditions.

AGROECOLOGICAL ELEMENT	KATC ACTIVITIES
Human and social element	<ul style="list-style-type: none"> • Its work is aligned with Jesuit values and aims to bring about more equitable and inclusive social relations
Culture and food traditions	<ul style="list-style-type: none"> • Participates in the annual Zambia Traditional Food and Seed Festival

Characteristics and practices

Characteristics and practices include diversification, synergies, efficiency, resilience, recycling, co-creation and sharing of knowledge. The table below provides an overview of what KATC undertakes in each of these areas.

AGROECOLOGICAL ELEMENT	KATC ACTIVITIES
Diversification	<ul style="list-style-type: none"> • Varied KATC activities • Crop rotation – to maintain soil health and boost biodiversity • Intercropping – to maintain soil health and produce diversity of crops • Multiple income streams – vegetable and milk sales, processing, research and advocacy work, and training
Synergies	<ul style="list-style-type: none"> • Manure from on-farm livestock (range of animals from cows to chickens, ducks, rabbits, etc.) used for on-farm composting • Use of hedge rows to attract natural pest enemies • Includes livestock in production (dairy and cattle) • Beneficial plants and insects. Marigold, lemon grass and basil are used for natural pest management – aphids, caterpillars and mites • Trees and plants used purposefully as design tools for windbreaks, soil enhancement, etc.
Efficiency and recycling	<ul style="list-style-type: none"> • Uses animal waste, crop residues and green manures or cover crops to maintain soil fertility • Uses eco-tea for soil fertility • Manure from on-farm livestock (range of animals from cows to chickens, ducks, rabbits, etc.) used for on-farm composting. Note some manure needs to be bought in to sustain compost making. • Preventative measures used to stop pests and disease among cattle. The livestock is not certified as organic though as antibiotics are used in life-threatening circumstances • Botanical extracts used to control pests and diseases when necessary, but homemade remedies made on site for pest and disease management is the norm
Resilience	<ul style="list-style-type: none"> • Undertakes seed multiplication and production • Significant focus on building healthy soils • Water use: rain-fed reservoir
Co-creation and knowledge sharing	<ul style="list-style-type: none"> • Member of ZAAB • Part of wider national and regional networks • In-country partner for the Knowledge Hub for Organic Agriculture in Southern Africa • Offers training courses and maintains demonstration sites to support knowledge exchange and sharing to help scale uptake of organic agriculture

Enabling features

Enabling features encompass responsible governance and building a circular and solidarity economy. The table below provides an overview of what Loctaguna Organics undertakes in each of these areas.

AGROECOLOGICAL ELEMENT	KATC ACTIVITIES
Responsible governance	<ul style="list-style-type: none">• Governed by a Board of Trustees
Circular and solidarity economy	<ul style="list-style-type: none">• Does policy and advocacy work to enable greater participation in decision-making by food producers and consumers

5.3 Access to markets

KATC is a formally registered social enterprise. It aims to generate broad societal benefits, as aligned to its mandate as a Jesuit organisation. Revenue generated goes to operating costs and to supporting ongoing programme and project activities.

Note that the comments below pertain to the farming collective. As an organisation, KATC has multiple channels for its products, including on farm sales.

A key challenge for the farming collective at KATC is market access. Without proper storage (such as cold rooms) and transport to access markets, they are effectively price takers and are reliant on buyers coming to them or organising themselves to get to a market. They are also not trained marketeers and so have limited capacity in branding and marketing themselves. KATC takes orders online for collection on the farm. The collective also does not have transport to reach central city markets on a regular basis. About 90% of customers drive to the collective to fetch vegetables – these are primarily resellers with space in the urban markets.

The collective practices an informal approach to PGS in that they work alongside each other and can monitor whether agroecological production processes are followed. The collective has not yet organised themselves into gaining funding support that would enable them to secure the infrastructure (such as cold storage) and vehicles necessary to engage effectively with the market.

Beyond this, KATC notes that organic products are still priced similar to conventional ones as there are low levels of consumer awareness around the benefits of organic production. Agroecological farmers therefore do not benefit from a price differential for sustainably produced food.



7. CONCLUSION

The current agri-food system is killing us and the planet. It does not deliver affordable, nutritious and appropriate food. It does not enable equitable access to market for most of the world's producers. It does not contribute to resolving rural poverty and inequality. It does not provide a solution to pressing challenges, such as climate change; instead, it compounds them.

Agroecology provides an appropriate framework for the agri-food system because it acts at all levels – it encourages environmentally friendly production that produces a diversity of safe, nutritious foods; it acts to restructure markets into more equitable ones that also act as hubs for knowledge exchange and it places farmers and consumers at the heart of the food system, instead of profits.

The case studies illustrate clearly how agroecological producers act across all of these levels. KATC acts at various levels in the agri-food system as an agent of change. It advocates at the national level for changes to policy and it works directly with government technocrats and extension officers through training programmes. Loctaguna Organics is a good example of how an agroecological approach extends to enabling social and economic transformation.

The case studies also illustrate the clear need for consumer education around the benefits of and need for agroecological production in Zambia, and for advocating for supportive policy frameworks that enable access to markets for smallholder farmers.

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