EMG
Environmental
Monitoring Group

FOOD FOR PEOPLE, FARMING FOR PLANET

AGROECOLOGY IN SOUTH AFRICA

INTRODUCTION

AGROECOLOGY IN CONTEXT

For over ten thousand years, humans had used only the natural resources of energy, water and soil to farm, adapting agricultural practices to changing environmental conditions. Ecology is our understanding of the interconnected relationships between living organisms at all levels: individual, population, community, ecosystem, and biosphere. Agroecology integrates agriculture and ecology into farming practices that combine the study of the natural environment's conditions and cycles, with an understanding of a local community's needs.

Agroecology works with the rhythms and resources of nature – restoring soil health, increasing biodiversity, enhancing water conservation, activating indigenous local food production and increases access to sustainable livelihoods. Agroecology supports food sovereignty, the system in which the people who produce, distribute and consume food also govern its policies and mechanisms, changing the food regime to address food insecurity, waste and environmental destruction.

In the past century, the global food system has industrialised due to dominant capitalist economies commercialising fossil fuels, replacing small-scale biodiverse agriculture with large-scale monoculture agricultural model. This model uses huge amounts of chemical fertilisers, herbicides, pesticides and machinery to minimise cost and energy inputs. Genetically modified organisms (GMOs) were introduced to tolerate herbicides and kill pests, and these 20th century practices have led to massive land and soil degradation, ecosystems destruction, biodiversity losses including pollinators - bees, and pollution of water and air.

This agricultural system of food production has increased carbon emissions, contributing at least 10 to 12% to the global total of greenhouse gasses (GHGs) 80% of this is nitrous oxide, methane and carbon dioxide (CO_2) from farms, warming the planet and fuelling climate change impacts. [1] There is no end in sight of global GHG emissions; with highest-ever levels recorded in 2021.[2] In South Africa, agriculture contributes 18% of our total carbon emissions, impacting agricultural workers and local communities' health and quality of life through exposure to toxic chemicals and water pollutants, precarious working conditions and low wages.

Many people now have no, or insecure access to, and ownership of land. At the same time, commercial farms and corporate food manufacturers ensure consistent profits from a global food system that prioritises export-oriented markets, and chemically-grown food products. Globally and locally, this industrialised food system results in hunger, malnutrition and increased health impacts like diabetes and heart disease.

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1 Intergovernmental Panel on Climate Change, SPECIAL REPORT: Global Warming of 1.5 °C, 2018 https://www.ipcc.ch/sr15/

2 International Energy Agency, Global Energy Review: CO_2 Emissions in 2021, 2022 https://www.iea.org/reports/global-energy-review-co2-emissions-in-2021-2

Climate Change Hotspot

South Africa is a hotspot for climate change – we have water-scarce and semi-arid environments, recording interior heat temperatures twice the global average. Even if the global temperature rise is capped at 1.5°C by 2030, hotspots will experience a 3°C rise.[3]

Climate change impacts are increasingly more severe: rising temperatures with more frequent and extreme floods, prolonged droughts along shifting time-scales.

Showing resilience to climate change impacts, agroecological farming systems maintain healthy covers of topsoil, ensuring greater absorption and holding of rainwater. This results in less severe flooding with excessive rainfall, and increases the farm's adaptation to less rainfall. Industrially farmed soils release CO_2 into the atmosphere, forming GHGs as organic material oxidises. Whereas agroecological practices capture more CO_2 from the air than they release by storing it in plants, trees and soil - resulting in increased soil fertility, and less GHGs.

South Africa needs urgent change, moving from the industrial large scale agricultural model to a sustainable accessible food production system. Agroecology is the agricultural model and food sovereignty system that is the political, social and economic alternative that puts people and planet before profit.

South Africa's Food System: Increasing Inequality

South Africa is the most unequal country in the world, with increasing rates of poverty, unemployment and hunger. Climate change deepens these systematic conditions, increasing the population's vulnerability according to race, class and gender: 10% of the population (mostly white) owns more than 80% of the wealth, and women earn on average 30% less than men[4]. Youth unemployment is rising annually, currently at 63,9% and is creating intergenerational wealth gaps.[5]

Added to commercial agriculture's 18%, road transport of processed food products from large-scale food manufacturers via central distribution points to supermarkets across the country, contributes another 1% to South African's total carbon emissions. This illustrates the economies of scale - manufacturers reduce costs due to large scale production and distribution: South Africa has 40 000 recorded commercial farm units. Most products are produced and distributed from 15000 units, ensuring big profits and deepening environmental destruction.[6]

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[3] IPCC, 2018

[4] Sulla,V.; Zikhali,P.; Cuevas,P.F. Inequality in Southern Africa: An Assessment of the Southern African Customs Union: World Bank Group. http://documents.worldbank.org/curated/en/099125303072236903P1649270c02a1f06b0a3ae02e57eadd7a82

[5] Stats SA, Department of Statistics, South Africa's youth continues to bear the burden of unemployment, June 2022 https://www.statssa.gov.za/?p=15407

[6] Biowatch South Africa, Biowatch Bulletin, June 2022 https://biowatch.org.za/download/biowatch-bulletin-july-2022/

In South Africa, 45% of the food supply is lost through waste, showing the systematic inefficiency of the large-scale agriculture model. Globally, Sub-Saharan Africa presents very high rates of food insecurity, with declines in food production predicted as climate change impacts worsen. For many agroecological farmers, inequality will deepen if access and control of productive resources remains skewed in favour of commercial farmers, and their vulnerability to climate change will increase if they are not better equipped to adapt.

A fractured food system: agroecology is a catalyst for change and transformation.

South Africa's food system exposed its vulnerability and inefficiency during the COVID19 pandemic and lockdowns: food prices escalated and uncertainty food availability created widespread national concern around food security. Before the pandemic 20% of households had inadequate or severely inadequate food access - spending 80% of their incomes on food. By March 2021, those with inadequate food access swelled to 35%, and 17% of households experienced consistent hunger.

At the same time, food corporations continued to profit: the agricultural sector grew by 13.4% in 2020 and 8.3% in 2021 indicating that the economic performance of the industrial food system reflects a negative correlation with the social malaise in South Africa. Food corporations dominate and influence government policy, the market and consumers, our nutrition and our diets, shaping these in their favour. This is at the expense of the right to food – nutrition and health - for millions of people, small farmers' and traders' livelihoods, and the environment. In 2021, 2.5 million adults and 600,000 children experienced perpetual hunger.

Agroecology has clear political, social and economic dimensions, widely viewed as the pathway towards Africa's food systems transformation - allowing for the development of just food systems, resilient farmer livelihoods and sustainable food access.

OUR POSITION

AGROECOLOGY IN EMG CONTEXT

Agroecology is emerging as the agricultural model and food system to activate social change for an equitable and sustainable future. EMG's agroecology approach encompasses the ecological, economic, social and political dimensions of food systems change – informed by Agroecology SA (AE SA) Principles: (our selection and edit).

Agroecology:

- Opposes the corporate model of agriculture … aims to bring about food sovereignty.
- Emphasises the building of agency of food producers and eaters… extends beyond primary producers to processors, distributors, marketing, retail and consumers.
- Extends beyond the food system to call for transformation of economic and social structures… is a people-led movement.
- Focuses on safeguarding and enhancing the rights of women, youth and indigenous peoples.
- Must be supported, rather than led, by science and policy.
- Emphasises environmental sustainability - mimicking ecological processes, …no or few external inputs, …does not prescribe production practices.
- AE SA encourages the adoption of participatory guarantee systems (PGS) to provide quality assurances… excludes the use of genetically modified organisms.
- Can be practiced in both small and large-scale agricultural systems.

EMG works with small-scale farmers, urban food-growers, and water justice activists across three provinces: Western Cape, Eastern Cape, and Mpumalanga.

In the Western Cape farmers produce from communities in areas within the Kuils River catchment area, on the periphery of Cape Town. Constrained by apartheid infrastructure and spatial planning, urban farming is a livelihood strategy, ensuring access to nutritious food.

Here our agroecology work threads together the health and quality of Kuils River's water, its impact on food-growing activities and communities - underpinned by a call for land and agrarian reform, water management and socio-economic justice.

In Mpumalanga and the Eastern Cape EMG work focuses strongly on food sovereignty, indigenous knowledge systems, and establishing farmer owned seed-systems. Addressing the gendered dimension of agroecology, our work has an important focus on women farmers' access to, and ownership of land, currently mostly held under customary tenure arrangements, impacting on women farmers' subsistence livelihoods and food security.

The United Nations - (UN)'s Food and Agriculture Organisation (FAO) identified 10 elements of an agroecological farming system, also prescribed to by AE SA.

Next up, we share profiles of farmers in South Africa practising elements of agroecology.

PROFILES

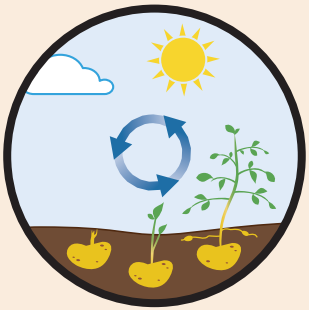
SECTION 3: ELEMENTS OF AGROECOLOGY

BRETT SANDER
COLD MOUNTAIN FARM COOPERATIVE AND OVERBERG PGS
STANFORD, WESTERN CAPE

DIVERSITY

Diversity is key to agroecological transitions to ensure food security and nutrition while conserving, protecting and enhancing natural resources. Farming systems that practice optimising the diversity of species enhance the valuable services of restoring soil health, pollination as well producing a wide range of indigenous quality food crops and herbs, and conserving indigenous fynbos flora and fauna.

Farmer Brett Sander of Cold Mountain Farm Cooperative, a member of Overberg Participatory Guarantee System (PGS), conserves biodiversity in nature and in the production system. Natural resources are conserved, including the indigenous vegetation, and the initiative also embraces and celebrates the diversity of community, indigenous knowledge and cultural practices. Diversification of farming ensures food security and nutrition while conserving, protecting and enhancing natural resources.



EFFICIENCY

Innovative agroecological practices produce more by improving the use of natural resources that are abundant and free like sunshine, and gasses in the air containing carbon and nitrogen. By enhancing biological processes and recycling plant material, nutrients and water, producers reduce costs and negative environmental impacts.

At Cold Mountain Co-operative the farming system uses compost, mulching and microbial stimulants to produce horticultural crops. Nitrogen-fixing cover crops are grown to enhance fertility and swales have been constructed in cultivated lands to enhance infiltration of rainwater and prevent soil erosion.

- As a trained economist, Brett Sander saw agriculture as the driving force behind real socio-economic development and founded numerous agroecology initiatives to address poverty and food security - with the goal to develop alternate value chains in the South African organic sector. This journey culminated in the establishment of Cold Mountain Cooperative as a demonstration viable alternative agri-model and driver of agrarian transformation.
- Cold Mountain Farm Cooperative aims to demonstrate sustainable development through indigenous knowledge and agroecology to achieve a holistic and self-sustaining farm ecosystem and to enable local communities to achieve greater well-being through economic development, improved nutrition and food sovereignty. The farm was established in 2005 and started transitioning to agroecology since 2015.
- Cold Mountain farm is a 417-hectare farm situated in Stanford in the south west of the Western Cape Province, an arid region that gets winter rainfall from May – August of about 280 to 550mm per annum, with access to the upper Uilenkraal river. Arable land in the area is used to produce grapes and other fruits, and is pasturage for dairy and beef cattle, and sheep. Monoculture agriculture, mechanised methods, intensive grazing practices and invasive alien plant species had degraded the natural ecosystems and the soils of the area. Cold Mountain had also been farmed conventionally with intensive use of pesticides, fertilisers and weed killers.

To restore life and vitality back to the soil at the farm, the operation started with adding organic humus - biomass, a home that fungi and microbes can start living and dwelling in. The farm has converted to using organic pesticides like copper and sulphur for pest management.

The cooperative is a 100% black member-owned business based on agroecological principles that processes and markets organic certified produce including figs, baby vegetables, fynbos and wine from its members. The Cooperative has been bottling wines under the Brunia brand since 2017 in a rented cellar.

To support its primary business and mission, the cooperative also provides supplementary services to its members and local community including training in organic and sustainable production, and provision of organic farming inputs where needed. The cooperative provides support for the Overberg PGS which has 10 farmer members including the Die Kop network of 32 farmers, and is growing.

The farmers secure access to local markets and organic retailers through the PGS which also functions as a learning space – members do peer to peer reviews of farm practices, sharing knowledge and practices, applying and experimenting.

- The farm conversion from a conventional, chemical-based system in the past seven years has been costly but the cooperative has shown great results in qualitative analysis of the wine and produce.
- Cold Mountain started sustainably harvesting indigenous fynbos species present on the farm to preserve fynbos health and diversify the farm's income streams. Local community groups have joined the cooperative and pick for both fresh and dry fynbos markets locally and abroad.

- Swales have been constructed across the farm and cultivation has been adapted to following contours to prevent erosion and enhance infiltration of water.
- To increase the efficiency of water use on the farm, they changed how three hectares of figs were planted. They were positioned from north to south on a steep slope, causing water runoff down the slope, waterlogging bottom areas and causing water stress in the top areas. The orientation of the lines of fig trees were changed to interlace every 2.5 metres across the contour of the slope. This ensures the fig trees get enough sun, while nets and pans placed around the trees collect water around the tree and any extra run off flows slowly down the line and any leftover flow is directed into swales. The swales allow the water to stop, sink and spread, permeating the lower ground and feeding those roots.
- Compost, mulching and microbial stimulants are used to produce horticultural crops and nitrogen-fixing cover crops are grown to enhance fertility.
- Ecosystem services are maintained conserving the indigenous vegetation and preventing pollution of surface ground water.
- The Cooperative also supports the school food programme at Die Kop via the NGO providing access to local nutritious food and a diverse diet.

"Agroecology farming and the PGS has started to localise, bringing in more developmental farmers who would often be excluded from those farmer associations, and offers a way of competing on the market with bigger brands, and offers products the consumers attach and connect to: local, organic, agroecological and less carbon heavy production."

Brett Sander

HEIVELD COOPERATIVE
NIEUWOUDTVILLE, NORTHEN CAPE

HEIVELD
WORLD'S FINEST ROOIBOS TEA

CO-CREATION AND SHARING OF KNOWLEDGE

Innovations in agriculture respond better to local challenges when they are co-created with people through participatory processes. When farmers share and exchange different kinds of knowledge in the co-creation of new agricultural technologies, it can result in adaptable and flexible innovations.

The farming systems of the Heiveld Cooperative are built upon indigenous knowledge and traditional practices, with some agricultural innovations co-created with scientists, academics and others, integrating knowledge and methods. Heiveld Cooperative is a member-owned business based on agroecological principles - processing and marketing organic and Fairtrade certified rooibos tea produced by its members.

The mission of the Heiveld Cooperative is "to produce and market the finest organic rooibos tea at fair prices on behalf of our members and thereby create a better life for small-scale farmers and other members of our community." The primary business of the Cooperative is to process and sell rooibos tea produced members to trading companies in countries mostly in the global north like France and Germany.

The farms are based in the Northern Cape Province on the Bokkeveld Plateau, the northern-most area of the species-rich fynbos biome of the Cape Floristic Kingdom. Sandstone dominates the western margins of the plateau and vegetation has adapted to the low-fertility, acidic and sandy soils, summer drought and cold, wet winters. One of the few plants in this biome with commercial value is rooibos (Aspalathus linearis), an indigenous shrub used for centuries as tea and health beverage, very popular in South Africa and increasing in recognition and consumption globally.

Most of the Bokkeveld population live on large-scale privately owned commercial farms, doing seasonal agricultural labour. In contrast, the Cooperative's members have access to land on which they produce their own rooibos. They established a Trust focussed on land access for members and conserving the environment, succeeding in purchasing the 2,500 hectare Blomfontein farm in 2017, the first proclaimed private nature reserve in the Northern Cape Province.

Heiveld Cooperative has 66 members, employing 20 workers during harvest season. The cooperative provides supplementary services to members including training in organic and sustainable production, provision of organic farming inputs, and an internal organic control system.

For 21 years the Cooperative has maintained a reputation as the producer of highest quality, sustainably produced, organic and Fairtrade rooibos – securing fair prices for members' produce and fair wages for agricultural workers, more minimum wage. It has established essential infrastructure for sustainable production, including constructing its own tea processing facility.

The Cooperative has engaged and facilitated participatory action research processes with researchers, exploring knowledge gaps or challenges. For example, farmers investigated key aspects of sustainable harvesting of wild rooibos populations in partnership with a researcher from the University of Cape Town. The study results showed that the farmers knowledge of optimal harvest season, frequency and tea volumes to maintain health, productivity and reproduction of the plants, was supported by scientific findings.

Research on ecosystem functioning in rooibos production areas was conducted in partnership with four farmers and showed enhanced ecosystem services such as wind reduction, nesting sites for diverse pollinating insects and improved soil fertility in these organic production systems.

"By sharing knowledge with fellow farmers, I've gained a better understanding of how to care for the land and insight into life of the soil, so that it can deliver good returns over time despite climate changes. If you know what goes on under the soil surface and how cultivation affects the microorganisms, you appreciate the importance of mulching and letting the land rest between crops."

Wesley Opperman, Farmer from Melkkraal

MERLE DIETRICH
ECOWIN AND GOEDVERWACHT TOURISM DEVELOPMENT FORUM
PIKETBERG, WESTERN CAPE

SYNERGIES

Building synergies enhances key functions across food systems, supporting production and multiple ecosystem services. Well-designed and managed farming systems create and support synergies that provide multiple benefits to nature and people that co-exist in farming communities. Combinations of crops, trees and livestock enhance soil fertility and resistance to pests and diseases while producing more nutritious foods

Goedverwacht Tourism Development Forum is known as “Kosland” (Food Land) because of the food production traditions and culture of the community. The community-based enterprise EcoWin and the Tourism Forum demonstrate synergies in action, promoting sustainable food production and sustaining local culture.

EcoWin is a community-driven initiative to empower the residents of Goedverwacht to produce unique eco-friendly products, employing 6 community members. EcoWin works with the Goedverwacht Forum to advance community development and promote agri-tourism since 2013. The initiative is a collective with diversified business - buying and selling the agricultural products of its members, provides support on organic production, and facilities farm-based tourism.

Situated at Goedverwacht in the Piketberg area of the Western Cape Province, the village and adjoining agricultural lands lie along the Platkloof River, which originates in the Piketberg Mountains. Goedverwacht valley has good horticultural soils, quality irrigation water and a good microclimate for agriculture. Arable farmland is mostly privately owned – most community members provide agricultural labour, having little or no access to land to grow subsistence food crops.

The Moravian Church owns Goedverwacht valley, including the agricultural lands and community members' homes. On the basis of birth right, community members have access to agricultural lands with healthy soil and irrigation water to produce food crops. However, with no ownership or leasing agreements the land insecurity hinders development of the initiative.

The farmers primarily produce vegetable crops like onions, sweet potatoes, potatoes, maize, spinach, carrots, guavas, peaches, melons as well as rooibos tea, and herbs like buchu, wilde dagga and kanker bos. Most of the crop inputs are locally produced or obtained, like saving previous season's seed and farmers keep cattle, sheep and pigs. Chicken and cattle manure, biodegradable kitchen waste and fire ash are used to make compost to fertilise the soil.

Goedverwacht Forum coordinates activities in the community, promoting local agri-tourism through organising the annual popular "Snoek en Patat" Festival, where traditional fresh produce and seafood- snoek fish and sweet potatoes are prepared in the local cultural way.

Twelve agricultural producers supply EcoWin, benefitting from regular demand and direct sales of farm products to customers, restaurants and brokers at fair prices.

The production system is becoming more resilient and enhancing efficiency. Plants like fennel were not previously income-generating, are being used to create natural fences, a marketable product for effective insect barriers. Diversifications like fences grown from wild dagga attract bees, resulting in better pollination and enhancing sustainability. Improved administration and marketing has created more access and opportunities for sustainable livelihoods.

About 120 households improved their sustainable livelihoods and resilience, becoming self-sufficient and creating incomes. Community participation in the initiative has led to a more beautiful town and environment. The Goedverwacht community is growing in confidence, problem-solving and supported each other through the COVID19 pandemic.

"During COVID19 we could supply our vegetables and fruits to surrounding communities creating opportunities and promoting organic farming. Our great grandparents always used to market products along the coast, selling and bartering their produce for fish and other goods using the "perdekar" (horse-drawn carts) as vehicles. These opportunities still exist but lack of ownership of land prevents us from getting governmental and institutional support to develop bigger economically viable plots, having more festivals due to the sole ownership and selling rights held by the Moravian Church."

Merle Dietrich

DECEMBER NDHLOVU
MPUMALANGA WATER CAUCUS
BUSHBUCKRIDGE, MPUMALANGA

MPWC
Mpumalanga Water Caucus

RECYCLING
Recycling plant material retains nutrients, increasing fertility and productivity while reducing costs. Farmer December Ndhlovu works within the collective Permaculture Explorers whose practice is to return all of their organic crop residues and household waste to the soil by mulching and making composts, enhancing soil fertility.

December Ndhlovu is part of the Permaculture Explorers farming collective, which was formed in 2018 after a group of women community members finished the permaculture course with Tugela Ulwazi, a local NGO, who also supported the set-up of household organic vegetable food gardens. The collective has grown to about 60 members since 2018 as more community members graduated from the annual permaculture course. The collective secured their operations with fencing, rain tanks and flat roofs, as well as securing a communal plot of land for collective use from the local Traditional Council Authority.

The RDP village in Bushbuckridge in Mpumalanga province has summer rainfall, but has been experiencing increasing drought and water shortages, with previously flowing clean rivers that are now dry. Mpumalanga has large industrial timber plantations (ITP's) of gum and pine trees.

The plots started with vegetable crops such as spinach, cabbage, onions, carrots and tomatoes in the first year and in the second year introduced herbs, and as COVID19 emerged the focus

on medicinal herbs increased. The farmers grew wormwood, and developed herbal products like soap from African potato [hypoxis hemerocallidea/the African star grass], from their crops, improving crop use and efficiency in their agricultural production. The farmers initially started growing for food security because of unemployment, then expanded to selling surplus produce to each other, then extending further to local communities.

Permaculture Explorers sells surplus produce at busy areas at weekends and month-end, calling it "Tala Table" meaning green table in the local language of Sepulana. These farmers developed their skills through entrepreneurship training and are currently learning to extract oils from local fruit and vegetables.

The farmers use the permaculture method of farming – there are no chemicals inputs and only organic seeds are used, avoiding GMOs that are otherwise prevalent in Mpumalanga. They strictly only use household waste, crop residues and other organic material to create mulch and compost to improve the soil for their produce. The farmers catch and store rainwater in tanks and use nets to protect the crops and soil from sun and reduce water evaporation.

Permaculture Explorers doing mapping

The Permaculture Explorers provided a source of organic produce when the COVID19 pandemic caused a national shutdown. Local communities remarked on the good taste and quality of their produce, amid a market of increased food prices, earning Permaculture Explorers the respect of local communities. Permaculture Explorers have also reported an improvement in the quality of their health with consumption of organic produce, relieving ailments such as tiredness, painful feet and backs.

"Agroecology is actually the best doctor in our lives these days, it is where we find health – providing a future for human culture. You don't just get food out of this practice of agroecology, you also get life out of this practice. It is the best form of agriculture to fighting food insecurity and in the near future I think if there is a war that should break out, that war will be about water and food security. It is very important for everybody to start using the small piece of land they've got within their yard, even if they don't have that, put tyres and other makeshift containers, plant something so that you can always eat at the end of the day."

December Ndhlovu

NTOMBIKAYISE DONDI
IGALELO LABAFAZI
SINAKO HIGH SCHOOL, MAKHAZA, KHAYELITSHA

RESILIENCE
Farming systems are vulnerable to extreme weather events, pests and diseases impacting the ecosystem and agricultural production. Farms and ecosystems that are resilient withstand these impacts, and dependent communities access a sustainable supply of food produce. Enhanced resilience of people, communities and ecosystems is key to sustainable food and agricultural systems

Farmer Ntombikayise Dondi of Igalela Labafazi's land use, organic production and water management practices enhances the resilience of the local agricultural ecosystem by sustaining production and enabling food access. It also provides capacity development and other forms of support to the local community that enhance their resilience and support.

This initiative is a women led food growing project, which aims to demonstrate urban food-growing as a livelihood opportunity in Cape Town, through promoting organic food production and agroecology to achieve a healthy and localised food systems. This collective is a member of the Western Cape Water Caucus, and promotes farming at a household and small-scale level, demonstrating communities can achieve greater well-being through organic and safe production, improved nutrition, and food sovereignty.

This urban farm project is located at Sinako High School based in Makhaza, Khayelitsha with a lease agreement to use the land for food crop growing. Khayelitsha is situated on the periphery of Cape Town in the Western Cape, and was established to accommodate informal settlement households on the Cape Flats. Poor soil health, increasing temperatures, water shortages and flooding caused by winter rainfall pose challenges in the area. Although it has a vibrant and growing informal sector, housing, land access and water/environmental pollution are persistent challenges.

The Sinako food growing initiative is a women led and member- driven urban farming project, based on agroecological principles that processes organic produce for the local market. The primary mission of Sinako is to promote safe and organic food production, for local consumption. Sinako achieves this mission by producing organic food for the local market and by supporting under-resourced members of the community to access safe and free food.

The farmers enhance the resilience of the local ecosystem through their land use practises like restoring soil health through design and planning the layout of plots using raised beds containing healthy soil and promoting biodiversity through intercropping. Igalela Labafazi grows a variety of vegetables and herbs using organic seeds, compost and fertiliser, utilising rainwater tanks and sun protection nets to manage water use and mitigate increasing temperatures.

Cape Town presents competing and equally important land needs; land for housing and land for urban farming and agriculture. Agroecology can help support food sovereignty and transformation of food systems. This impact of Agroecology should not be separated from the need for land access, especially for women and land access for urban agriculture. Women's land access and ownership in South Africa is marked by tenuous arrangements, which comprises their tenure and their livelihood opportunities.

During COVID19, the restrictions on movement and water access resulted in the destruction of the previous food growing plot. Igalela Labafazi, through their experience and commitment, negotiated access to the current piece of land.

Agroecology should go hand in hand with demanding land redistribution, that will ensure land access for women farmers. The Sinako food- growing initiative highlights the importance of urban food growing and agriculture for its potential to increase food security resilience.

"Land ownership is very important. We all eat from this garden; my family, the people around me and the local community. But we are leasing this land from the school and using only what's been made available to us."

Ntombikayise Dondi

FARMER LUDWE MAJIZA
VUNIKHAYA PERMACULTURE
EMKHUBISO, KEISKAMMAHOEK, EASTERN CAPE

Farmer Ludwe Majiza and the organisation Vunikhaya Permaculture have been operational since 2018 with the vision of ecological farming – working with nature, is safe from chemicals and sustainable, adapting from conventional farming by practising permaculture farming and transitioning to organic production methods. Vunikhaya is and committed to unearthing the indigenous knowledge and cultural agricultural practices inherent in the farming community.

HUMAN AND SOCIAL VALUES

Protecting and improving rural livelihoods, equity and social well-being is essential for sustainable food and agricultural systems. Farmer Ludwe Majiza and the organisation Vunikhaya Permaculture practise this element of agroecology in their local agricultural system through communal production, shared land access and food sovereignty. The farming community are committed to focussing development of rural youth and sustainable livelihoods, indigenous and cultural knowledge exchange, and improving quality of life and health.

CIRCULAR & SOLIDARITY ECONOMY

Most modern economies extract money from the rural poor and accumulate it elsewhere. On the other hand, circular and solidarity economies reconnect producers and consumers, providing the social foundation for inclusive and sustainable development that does not cost the community and the local ecosystem environment. Ludwe Majiza and Vunikhaya Permaculture core commitment and values flow from the communal farming area, and connects the farmers to a consumer networks and distribution, enabling farmers to sell their agricultural produce at fair prices. Members exchange or sell to one another, and also give surplus produce where needed in the community networks.

Vunikhaya Permaculture thrives on partnerships and different collaborations with organisations, networks, business to business, institutions, academia and government departments.

eMkhubiso in Keiskammahoek, Eastern Cape Province has a history of farming since the 1800s as the climate and environment provides a rich ecosystem of natural resources. It is home to a variety of wild animals, and the land is arable with good soil that is mostly grazed by livestock who leave behind nutrients of manure. In contrast to the rest of the province, this farming area does not experience drought and critical water shortages, as it is situated at the beginning of the Keiskammahoek River running through and surrounded by mountains and valleys. Farmers have irrigation water throughout the year, and the area gets summer rainfalls and minimal winter rainfall while frost only occurs for a maximum of non-concurrent days.

The layout of the village creates a communal farming area where households have farms next to each other and shared access, unlike a conventional farm. Farmers produce vegetable crops like cabbage, beetroot, potatoes, spinach and onions for sale to retailers, informal traders and surrounding communities. Most households do subsistence farming growing vegetables, fruits and herbs, Vunikhaya Permaculture has secured a permit to plant hemp this year.

The entire community has some form of background in animal or crop production and 80% are practicing it. Farmers who produce at a larger scale price according to the market in order to make a profit. Subsistence farmers commonly sell at a lower price, and/or share what they cannot consume.

Working with nature means Vunikhaya does a number of practices like timing preparation of planting with rainfall instead of irrigation, and intercropping in plant beds, planting onion crops are planted at edges of plots to repel pests. Enhancing the diversity of crops enhances the soil health and acts as a pest repellent. Another practise is dipping starter seedlings in organic powder fertiliser cutting the need for chemical fertiliser input.

Since farming is a cultural practice, the agricultural knowledge available in the area means farmers have ready access to skilled seasonal labourers within the community that both provides sustainable livelihoods and enhanced production.

Surplus produce from the communal farming is exchanged and donated where needed where needed neighbours and churches for example, and the quality and taste of produce has been noted by the community. The impact of the COVID19 pandemic saw a reawakening of interest in the community of food as medicine and a focus indigenous crops and herbs like umhlonyane (wilde als) to enhance health.

"Agroecological farming is understanding nature and working with nature, it is sustainable and healthy, unlike conventional farming. Ecological and permaculture farming is indigenous knowledge; it just needs to be reawakened. If better is possible, good is not enough. At Vunikhaya we started at small scale to model and prove it can be done, now we are slowly migrating now to large scale, to more natural, safer and sustainable way of production. People are understanding now that you know that food is medicine, even with the COVID19 pandemic, the silver lining is that people understand now that our indigenous crops and herbs actually can be part of a solution."

Ludwe Majiza

ECARP AND PHAKAMANI SIYEPHAMBILI
EASTERN CAPE

Mrs Mavis Mkrwekrwe from Eluxolweni planted spinach and potatoes in tyres

CULTURE AND FOOD TRADITIONS

By supporting healthy, diversified and culturally appropriate diets, agroecology contributes to food security and nutrition while maintaining the health of ecosystems.

The farmers' initiative of East Cape Agricultural Research Project (Ecarp) & Phakamani Siyephambili promote healthy, diversified and culturally appropriate diets by sharing the seeds of their indigenous open-pollinated crops, producing nutritious food crops thereby sustaining food traditions of the community.

Their mission is to advance agroecology and food sovereignty by enabling small-scale farmers and micro-food producers to use their local and indigenous knowledge to supply nutrient rich organic produce abundantly, and advance their socio-economic, political, and ecological interests for greater equity. Formed by farm workers, dwellers, and small-scale farmers to advocate for a transformed agrarian political economy, the focus of membership is producing, marketing crops and initiating savings schemes.

After engagements with government and commercial farmers, members gained land access through land redistribution programmes, or tenure security agreements. Producers began agroecology training and launched Phakamani Siyephambili in 2013, with current membership including 1104 small-scale farmers and micro-food producers.

Mrs. Thembeka Xundulu's open-pollinated maize harvest

Operating across 113 farming / food production systems farmers and agricultural workers living on privately owned commercial farms, producing in school gardens, township and informal settlement vegetable plots; it connects producers who market to each other, and to consumers at agri-hubs and vegetable stores. Realistic but fair pricing covers expenditures and returns a profit for farmers.

ECARP works on mechanisms to address unequal socio-economic conditions related to labour, land, service access, lack of market power and unequal power relations in food value chains.

Located in the western rural area of the Eastern Cape Province, the majority of livelihoods depend on commercial agricultural employment, which focusses on animal husbandry and monoculture crop production. Agricultural workers, whether living on or off farms, do not own or have little to no access to land for subsistence or small-scale farming.

The province receives summer rainfall, and is impacted by increasing droughts and water shortages. The rates of unemployment and poverty are high, directly impacting on people's access to nutritious and healthy food.

Phakamani Siyephambili farmers practice agroecology through mixed farming: horticultural production and animal husbandry. The produce includes a wide variety of fruits like watermelon and peaches, vegetables like butternut and pumpkin, herbs, seeds and grains like samp and indigenous crops like maize - the common variety is ubrikwa with different colours.

The open-pollinated seed crops include bitter melon, and a variety of beans and peas, among others. Animal meat products include five different chicken breeds providing fresh organic eggs for example.

The COVID19 pandemic lockdown restricted work travel, distribution and consumption of food, but it exposed the value of land access and local food production. The farmers demonstrated their ability to consistently provide food crops and satisfy household needs.

Records show significant increases during 2020: crop yields by 80%, marketing by 32% and incomes and profits. ECARP worked with the food producers on increased savings: investing

in households, land use and farming operations by for example renovating houses and purchasing fencing - household indigenous seeds saving increased by 89%, crop bartering and provision of food crops for free to needy households increased by 31%.

Archie Mbolekwa Primary School learners transplanting spinach and lettuce seedlings

- Members using organic methods report more efficient water use, greater resilience of crops in dry periods and reduced input costs.
- Livelihoods of members and their families have improved, including enhanced food security, housing and education.
- Investment in farm improvements, enhanced livestock nutrition and health.
- Members exchange knowledge, open-pollinated seeds and share income, farming implements and produce.
- Social capital, self-esteem, agency, resilience and capabilities essential to secure land, produce food and sustain agroecology have all been developed.
- The biophysical, social and economic activities and interactions create synergies that strengthen the local food systems and make them more productive whilst sustaining ecosystem services such as healthy soils.

"Agroecology is not an option; it is a necessity to meet society's food needs and sovereignty in the present without compromising the ability of future generations to meet their own needs. Agroecology is improving quality and quantities of produce at all scales of production."
ECARP

PARTICIPATORY GUARANTEE SYSTEM – SOUTH AFRICA (PGA SA)

RESPONSIBLE AND EFFECTIVE GOVERNANCE

Sustainable food and agricultural systems require responsible and effective governance mechanisms at different tiers – from local to national to global. Accountable and inclusive governance systems promote more secure land tenure and well-run businesses.

Participatory Guarantee System South Africa (PGS SA) is the national representative body for PGS, sister organisation of South African Organic Sector Organisation (SAOSO). PGS is a horizontal structure in which all members participate, setting rules and doing mutual inspections of farming practices. Decisions are democratic with active participation being required for on-going membership, and access to organic certification. The national PGS SA committee is made of all PGS groups in the country and includes provincial PGS representatives..

PGS SA registered as a Non Profit Organisation in 2013 with the mission to:

- Support the establishment of PGS to facilitate fair and equitable market access for local organic growers and producers.
- Create an environment where consumers are assured of the quality and integrity of organic products.

PGS SA assists smallholder farmer groups to harness the economic, environmental, and social potential of organic farming to develop local food systems that are climate resilient, keeping soils and people healthy. This transparent, producer-focused system assures consumers of the integrity of organic products and links producers into a community of practice through knowledge exchanges, whilst developing consumer awareness around ethical choices that support local economic development.

The current commercial agricultural value chain is not receptive to small holders or agroecology, and PGS is part of the solution to reshaping localised food systems close to farmers, offering fair prices. Through establishing local markets and diversifying distribution PGS members produce and supply a range of organic certified products. Currently, there are PGS groups operating and flourishing 6 provinces with the focus to seed more provincial PGS groups in the next 5 years.

The most active PGS groups are either located close to big urban areas (Cape Town, Johannesburg) or in small towns and villages where there is strong demand for healthy food and a growing organic farmer base, energised by PGS organic sector advocates.

Compliant PGS members share documents proving operation according to PGS principles, data on their farms including notable exceptions of standards granted - an additional layer of quality assurance. This community based organic certification system enables market access for smallholder organic farmers.

Farms may vary greatly from small backyard gardens to small scale commercial farms, but the members are united in the shared commitment to organic agriculture and their communities.

PGS | SOUTH AFRICA

PGS is governed by its members – comprised mostly of a diversity of farmers, as well as consumers, market actors and any stakeholders developing the local food system, including local government. Members elect a committee who manages PGS operations.

Market access varies greatly - some produce independently, sell at their own or shared market stalls, door to door, via box delivery schemes, organic hubs and some plan their production through a cooperative. Members can do seed exchanges, highlighting the importance of seed saving in PGS value chains, and organise organic farming and food awareness raising events. PGS SA values knowledge sharing amongst members highly, including consumers and traders in its processes. Different knowledge sources are all mutually respected and integrated in members' practices.

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Members benefit from urban market access that pays premium price for farm produce. The label "PGS Organic Certified" shows compliance with organic agriculture principles, incentivising consumers to pay higher prices. The seal "PGS Organic in Conversion" shows a farming practices are in transition, further building consumer trust through transparency about farms and produce.

The farmers' production practices and records are assessed annually by the PGS group as a whole. PGS experience over time shows:

- Soils have improved, becoming rich and fertile and members' agroecological production management skills have steadily developed.
- PGS groups incorporate a great diversity of membership and enterprises. In some groups such as iGoli PGS, members with larger areas of land have provided access to those that do not own land.

The PGS is based upon common values and actively promotes the social and economic empowerment of its members based on a shared vision of organic agriculture and social equality, actively supporting women members and integrating youth. More equitable pricing ensures improved social well-being and livelihoods of PGS farmers and their communities.

"Organic has changed my life as I have learned a lot from PGS. And now I have become a teacher and a doctor to other farmers and community members without formal education."

Mrs Tintswalo Mallina Rikhotso, Nwa Risenga in Makhuva Village in Giyani, Limpopo Province

CONCLUSION

ADVOCATING ADVOCATING FOR AGROECOLOGY – A SUSTAINABLE FUTURE

Research shows that organic farms support 34% more plant, insect and animal species than conventional farms,[1] and that conversion to organic farming in Africa increased agricultural productivity by 116%.[2] Advocating for agroecology connects the struggle for environmental justice and social justice, as it provides an agricultural model for sustaining land and sustaining society.

Globally, EMG's partnership with the AVACLIM project researches agroecology initiatives with famers and scientists in South Africa, Burkina Faso, Senegal, Morocco, Ethiopia, Brazil and India, linking agroecological communities and analysing the impacts. Addressing the interconnected environmental problems of land degradation, GHG emissions and food insecurity, the project aims to advocate for agroecology in the respective countries and to intergovernmental bodies.

The project was developed in recognition of the need for a transition to more sustainable and inclusive food systems that use resources more efficiently, and produce in a more equitable way and results show –

Agroecology improves resilience:

- Resilience of nature: develops/uses practices that protects soils, enables soils to recover and improves management of water use.
- Resilience of communities: building human and natural capital and reflective learning.
- Resilience of nature and biodiversity: the preservation of the fynbos' health.

Agroecology improves quality of life and human and social values:

- PGS is economically successful and gives members alternative sources of livelihoods - cash income and improved food security.
- PGS initiatives promote cooperation between food producers, food sellers, and their greater communities.
- Food security - people eat local and healthy food.

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1 University of Oxford, Organic farms support more species, researchers find Science Daily, 3 February 2014
https://www.sciencedaily.com/releases/2014/02/140203191808.htm

2 United Nations Conference on Trade and Development and United Nations Environment Programme, Organic Agriculture and Food Security in Africa: UNEP-UNCTAD Capacity building Task Force on Trade, Environment and Development. 2008
https://wedocs.unep.org/handle/20.500.11822/32153

- Farmers sell 100% of their production at their asking price – demand is higher than supply in South Africa currently.
- Soils are made healthy, showing clear improvement with organic management. On a farm under organic management for 20 years, no nutrient limits on vegetable production were found. This is significant as the area normally does not carry vegetable crops without soil improvement and regular intervention.
- Wild harvesting allows ecosystems to remain intact where it occurs.
- Focus on community leads to healthier social and agricultural systems.

In collaboration with the AE SA, PGS SA and the SAOSO, EMG held an advocacy workshop with civil society including farmers, non-governmental organisations, academia and government to strengthen the sector to advocate for farmer-led agroecological development. To explore ways to collaborate collectively to respond to the climate and food security crises, and develop strategies to achieve better alignment between government policy and the agroecology agricultural model. The civil society workshop worked together to develop lobbying goals and action plans for the advocacy priorities identified which included:

- Release of well-located land by the government for agroecology farming demonstration sites,
- The establishment of a national programme for school garden education,
- Ensure that the Agricultural Sector Adaptation Plan includes and addresses agroecology,
- Create agricultural extension services to farmers that support agroecology,
- Revision of Act 36 of 1947 to allow for the registration and sale of biological input - this Act is outdated: the bureaucracy and high costs of registration on farmers prevents registration of ecological / organic inputs for agroecology farming,
- Strategic clearance of plantations in the Sabi / Sand catchment area in Mpumalanga province,
- Growing a national network of networks for agroecological producers.

Food for people, farming for planet: there is insurmountable evidence that South Africa needs to shift toward agroecology farming, in order to minimise and adapt to the impacts of climate change, improve sustainable livelihoods, and re-synergise nature and food production.

Forward to an Agroecological future, Phambili!

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