National Agroecology Framework for South Africa (**NAFSA**)

agriculture
Department:
Agriculture
REPUBLIC OF SOUTH AFRICA

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Excellence in Research and Development

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LIST OF ACRONYMS

AAMP	Agriculture and Agro-processing Master Plan
AFSH-AP	Africa Fertiliser and Soil Health Action Plan (https://au.int/sites/default/files/documents/43779-doc-Action_Plan_Fertilizer_and_Soil_Health_E.pdf)
AgBiz	Agricultural Business Chamber (http://agbiz.co.za)
AgriSA	South African Agricultural Union (https://www.agrisa.co.za)
AgriSETA	Agricultural Sector Education Training Authority (https://www.agriseta.co.za/)
AFFM	Africa Fertilizer Financing Mechanism
AIC	Agricultural Inputs Control, Directorate in DoA
ARC	Agricultural Research Council (http://www.arc.agric.za)
AU	African Union (https://au.int/)
CA	Conservation Agriculture
CAADP	Comprehensive Africa Agricultural Development Programme (https://au.int/en/caadp)
CAP	Conservation Agriculture Policy
CARA	Conservation of Agricultural Resources Act
CASP	Comprehensive Agricultural Support Programme
CBD	Convention on Biological Diversity (https://www.cbd.int/)
CCA	Climate Change Act
CGIAR	Consultative Group on International Agricultural Research
CH_4	Methane
CO_2	Carbon dioxide
CSA	Climate-Smart Agriculture
DAFF	Department of Agriculture, Forestry and Fisheries
DALRRD	Department of Agriculture, Land Reform and Rural Development
DFFE	Department of Forestry, Fisheries and the Environment (https://www.dffe.gov.za/)
DoA	Department of Agriculture (https://www.nda.gov.za/)
DTIC	Department of Trade, Industry and Competition
DSTI	Department of Science, Technology and Innovation
EbA	Ecosystem-based Adaptation
EOA	Ecological Organic Agriculture
EOAI	Ecological Organic Agriculture Initiative
FAO	Food and Agriculture Organisation of the United Nations (https://www.fao.org/home/en)
FFS	Farmer Field Schools
GBF	Global Biodiversity Framework (https://www.cbd.int/gbf)
GCA	Global Commission on Adaptation (https://gca.org/about-us/the-global-commission-on-adaptation/)
GDP	Gross Domestic Product
GG	Government Gazette (https://www.gpwonline.co.za/egazettes/)
GMO	Genetically Modified Organisms
GN	Government Notice
H	High potential,
HLPE	High-Level Panel of Experts
I	Irrigated
IDC	Industrial Development Corporation (https://www.idc.co.za/)
IFS	Integrated farming system
IKS	Indigenous Knowledge Systems
IPM	Integrated pest management
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
L	Low Potential

LDN	Land Degradation Neutrality
M	Medium potential
M&E	Monitoring and Evaluation
MEL	Monitoring, Evaluation, and Learning
MLSM	Multi-level Stakeholder Mechanism
N_2O	Nitrous oxide
NAFSA	National Agroecology Framework for South Africa
NAMC	National Agricultural Marketing Council (https://www.namc.co.za/)
NBSAP	National Biodiversity Strategy and Action Plan
NDCs	Nationally Determined Contributions
NDP	National Development Plan
NEMA	National Environmental Management Act
NEM:BA	National Environmental Management: Biodiversity Act
NFNSP	National Food and Nutrition Security Plan
NGO	Non-Governmental Organization
NPCPDS	National Policy on Comprehensive Producer Development Support
NPO	Non-Profit Organization
NPPGRFA	National Plan for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture
NRF	National Research Foundation (https://www.nrf.ac.za/)
NWA	National Water Act
OPV	Open-pollinated variety
PBRA	Plant Breeders Rights Act
PDALA	Preservation and Development of Agricultural Land Act
PGS	Participatory Guarantee Systems
PIA	Plant Improvement Act
POPIA	Protection of Personal Information Act
R	Rainfed
RA	Regenerative Agriculture
SADC	Southern African Development Community
SAQA	South African Qualifications Authority (https://www.saqa.org.za/)
SDC	Swiss Agency for Development and Cooperation
SDGs	Sustainable Development Goals (https://sdgs.un.org/goals)
SME	Small and medium enterprises
SSA	Sub-Saharan Africa
TAPE	Tool for Agroecology Performance Evaluation
ToC	Theory of Change
UNCCD	United Nations Convention to Combat Desertification
UNDROP	UN Declaration on the Rights of Peasants and Other People Working in Rural Areas
UNFCCC	United Nations Framework Convention on Climate Change (https://unfccc.int/)
UN FSS	United Nations Food Systems Summit (https://www.unfoodsystemshub.org/)
USAID	United States Agency for International Development (https://www.usaid.gov/)
WRC	Water Research Commission (https://www.wrc.org.za/)
WWF	World Wildlife Fund (https://www.worldwildlife.org/)

GLOSSARY OF TERMS

Agro-climatic zone

A geographic area that is defined based on its climate, soil type, topography, and agricultural potential. These zones are used to guide decisions on the most suitable crops, farming practices, and resource management strategies for sustainable agriculture.
Key factors used to classify agroclimatic zones include:

- Temperature patterns
- Rainfall levels and distribution
- Length of growing season
- Soil characteristics

In simple terms, an agroclimatic zone is a region with similar environmental conditions that influence what kinds of crops can be grown and how agriculture should be practiced. This helps in planning region-specific farming and development strategies.

Agroecology

An integrated and holistic approach to agriculture that applies ecological principles to the design and management of sustainable food and farming systems. It emphasizes the interrelationships between plants, animals, humans, and the environment within food and agricultural systems, aiming to enhance productivity while conserving natural resources and promoting social equity. Key elements of agroecology include: Biodiversity (promoting diverse crops and livestock to strengthen ecosystem resilience), Soil and water conservation (maintaining healthy soils and using water efficiently), Traditional knowledge (valuing and incorporating farmers' local knowledge alongside scientific insights), Social and economic sustainability (supporting fair compliant labour practices, food sovereignty, and community well-being), Reduced dependence on, and elimination of, synthetic and toxic external inputs (limiting and eliminating the use of synthetic fertilizers and pesticides), and promoting seed banks of local crops and plants (storage of local, diverse, and climate-adapted seeds). In essence, agroecology is not just a set of practices, but a science, a movement, and a policy framework that seeks to transform food systems for environmental health, economic viability, and social justice.

Biodiversity

Short for biological diversity, refers to the variety and variability of all living organisms on Earth. This includes diversity within species (genetic diversity), between species (species diversity), and of ecosystems (ecosystem diversity) in which they live and interact. In short, biodiversity is the full range of life forms on earth - from bacteria to blue whales - and the ecosystems they form. It is essential for ecosystem health, human well-being, and the resilience of natural systems in the face of environmental change.

Carbon sequestration

The process of capturing and storing atmospheric carbon dioxide (CO_2). It is a key method used to reduce the amount of CO_2 in the atmosphere to mitigate climate change. There are two main types:

- *Biological sequestration* – the natural capture and storage of carbon by plants, soils, oceans, and forests through processes like photosynthesis.
- *Geological sequestration* – the capture of CO_2 from industrial processes and its long-term storage in underground rock formations.

In simple terms, carbon sequestration involves removing CO_2 from the air and keeping it stored so it does not contribute to global warming.

Climate change

Refers to long-term alterations in temperature, precipitation, wind patterns, and other aspects of the Earth's climate system. While climate can naturally vary over time, climate change today is largely driven by human activities, especially the emission of greenhouse gases like CO_2, methane (CH_4), and nitrous oxide (N_2O) from burning fossil fuels, deforestation, and industrial processes. Key aspects of climate change include global warming (the increase in Earth's average surface temperature), extreme weather (more frequent and intense events such as droughts, floods, hurricanes, and heatwaves), rising sea levels (caused by melting glaciers and thermal expansion of seawater), ecosystem disruption (changes in habitats, species migration, and biodiversity loss), impact on people (threats to water security, agriculture, health, and livelihoods). In short, climate change is a major environmental and social challenge of our time, requiring global cooperation and urgent action to reduce emissions and adapt to its impacts.

Climate variability

The natural fluctuations in climate patterns, such as temperature, rainfall, and wind, that occur over months, years, or decades. These variations happen around a long-term average and can be due to internal processes within the climate system or external factors such as volcanic eruptions or solar activity. In simpler terms, climate variability is the short- to medium-term ups and downs in climate conditions, like wetter or drier seasons, colder or warmer years, or changes linked to phenomena such as *El Niño* and *La Niña*. It is different from climate change, which refers to long-term trends or shifts in climate over decades or centuries.

Food security

A condition in which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

It is based on six key pillars:

1. Availability - having sufficient quantities of food produced or supplied.
2. Access - the ability of individuals and households having the resources to acquire the appropriate food they need, whether through purchase, production, or other means.

3. Utilization - proper biological use and ability to prepare and consume food, which includes adequate nutrition, clean water, sanitation, and healthcare to ensure proper nutrient absorption.
4. Stability - consistent access to food and reliability of food supplies at all times, without risk of sudden shortages or loss of access even during times of shocks like droughts, floods, or economic crises.
5. Agency - empowering individuals and communities to make their own choices about what food they produce, consume, process, and distribute, and their ability to participate in decision-making processes related to food systems policy and governance.
6. Sustainability - food systems that are environmentally, socially, and economically sustainable, ensuring current food and nutrition security for all without compromising the ability of future generations to meet their own needs.

In short, food security means reliable access to adequate and nutritious food for everyone, at all times.

Food sovereignty

The right of people, communities, and countries to define their own food systems, including policies on how food is produced, distributed, and consumed, based on culturally appropriate, ecologically sustainable, and locally controlled practices.
It emphasizes:

- The rights of small-scale farmers, indigenous peoples, and local communities to control land, seeds, water, and food production.
- Support for local food markets over global agribusiness.
- Protection of traditional knowledge and food cultures.

In essence, food sovereignty goes beyond food security by focusing not just on access to food, but on who controls the food system and how food is produced, with a strong emphasis on social justice, environmental sustainability, and local autonomy.

Integrated farming system (IFS)

A sustainable agricultural approach that combines different agricultural enterprises - such as crops, livestock, aquaculture, agroforestry, and biogas production - within a single farm unit, in a way that they complement and support each other.
The goal of IFS is to:

- Maximize resource use efficiency
- Reduce waste by recycling outputs from one component as inputs for another
- Increase income and food security
- Minimize environmental impact

In simple terms, an integrated farming system is a holistic way of farming where all components work together to improve the productivity, sustainability, and resilience of the farm.

Kyoto Protocol

An international treaty adopted in 1997 under the United Nations Framework Convention on Climate Change (UNFCCC). Its primary aim is to reduce greenhouse gas emissions and combat global warming by committing developed countries to specific emission

reduction targets. The Kyoto Protocol was later succeeded by the Paris Agreement in 2015, which includes broader participation and more flexible, nationally determined contributions to emission reductions.

Mainstreaming

The principal course of activity, where the first part of the word, main, connotes dominance, and the second, stream, connotes going with the flow. From this can be derived that mainstreaming means to make dominant, and to be the preferred dominant situation.

Natural resources

Materials or substances found in nature that are used by humans for survival, economic development, and well-being. These resources occur naturally in the environment and are not human-made.
They are typically classified into two main types:

1. *Renewable resources* - can be replenished naturally over time (e.g., sunlight, wind, water, forests).
2. *Non-renewable resources* - exist in finite quantities and can be depleted (e.g., fossil fuels, minerals, metals).

In short, natural resources are the earth's raw materials - like water, soil, air, minerals, plants, and animals - that support life and human activity.

Stakeholders

Individuals, groups, or organizations that have an interest in or are affected by a project, decision, or activity. They can influence or be influenced by the outcomes of that activity.
Stakeholders can include:

- *Internal stakeholders* - such as employees, management, or owners
- *External stakeholders* - such as customers, suppliers, government agencies, community members, investors, or Non-Governmental Organizations (NGOs)

In short, stakeholders are all the people or groups who have something to gain, lose, or contribute to a given situation. Their involvement is often crucial for the success and sustainability of a project or policy.

Sustainable Development Goals (SDGs)

A set of 17 global goals adopted by all United Nations Member States in 2015 as part of the 2030 Agenda for Sustainable Development. They provide a shared blueprint for peace, prosperity, and environmental sustainability for people and the planet.
The 17 SDGs aim to:

- End poverty and hunger
- Promote health, education, and gender equality
- Ensure clean water, affordable energy, and decent work
- Combat climate change and protect ecosystems
- Foster peace, justice, and strong institutions
- Promote partnerships for sustainable development

In simple terms, the SDGs are an international framework of goals designed to create a better and more sustainable future for all by 2030.

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EXECUTIVE SUMMARY

The National Agroecology Framework for South Africa (NAFSA) has been formulated to manage the transition from the agricultural systems that currently dominate the agricultural sector to more sustainable agroecological farming systems. It outlines a plan for the transformation of the agricultural sector by incorporating agroecological principles across the whole agri-food system supply chain, to ensure food security and food sovereignty, support rural development, and build strong, connected communities. It accentuates healthy and nutritious systems, including biodiversity, soil and animal health and welfare, and water efficiency, with minimal chemical inputs, to create productive and sustainable food systems.

Agroecology is based on applying ecological concepts and principles to optimize interactions among plants, soil, animals, humans, and the environment, while considering the social factors that must be addressed for a sustainable and fair food system (FAO, 2018). It is a sustainable agricultural-food system that employs ecological and social principles to design and manage food systems. Its goal is to enhance the interactions between humans, plants, soil, animals, and the environment while producing, processing, and distributing healthy, nutritious food and ensuring ecological integrity. Therefore, agroecology is a scientific, socio-economic, community-based approach and movement that examines the relationships between agriculture, the environment, and people. It values local knowledge through participatory methods to empower farmers, communities, and other stakeholders to actively shape their agricultural systems. Agroecology supports the creation of a more inclusive and sustainable food system in South Africa by building resilience to climate change, promoting social equity, animal welfare, and strengthening food sovereignty.

This framework has been developed by the ARC through the DoA-funded project entitled "Agroecological Management Framework for South Africa based on Case Studies" from 2023 to 2025. The project included a review of the South African and African legislation and policy relevant to agroecology, and field site visits to 10 municipalities in 5 provinces to assess the state of agroecology across the major agricultural farming systems in South Africa. Through these grassroots site visits and interviews with farmers, smallholder farmer groups, NGOs and extension practitioners, insights into agroecology's status could be assessed. This framework document has been informed by these project activities.

The agroecological principles are divided into three main groups. Those related to environmental sustainability include recycling, input reduction, soil and animal health, biodiversity, land and natural resources governance, as well as synergies across all the elements of the agri-food system. The social justice group includes co-creation of knowledge, maintenance of social values and healthy cultural diets, together with participation of food consumers and producers in decision-making and management of the agricultural-food systems. The third group is economic fairness that includes economic diversification, fairness for all role-players based on fair trade, fair employment, fair treatment of all property rights, and equitable benefit sharing from agricultural activities, together with strong connectivity between consumers and producers to enhance local economies.

The **Vision** of the NAFSA is "*An Agroecologically Transformed Agri-Food System with Secure Livelihoods*". The **Mission** is "*To transform South African agri-food systems, using agroecological principles, into a sustainable, viable, diverse, resilient, inclusive agri-food sector contributing to a healthy and secure society*". The goals of the NAFSA are to achieve the following:

1. To ensure food security and food sovereignty at all levels (national, local, and household) while maintaining the agricultural production potential of farmland based on agroecological principles.
2. To adapt and mitigate climate impacts and to build climate resilience and adaptive capacity through agroecological principles.
3. To promote "*One Health*" (animal, soil, and human health and nutrition) by employing Agroecological principles.
4. To facilitate the sharing of knowledge about agroecological approaches.
5. To promote the circular economy and support economic viability.
6. To encourage the sustainable use of natural resources using agroecological practices.

This can be achieved by cooperation among all role-players across the agricultural sector to address the strategic objectives. These include using appropriate agroecological practices in each of the twelve agroecological zones, through suitable on-farm research and innovation in agroecology, while developing supporting education, training, and capacity-building opportunities. In addition, strategies are needed for focused market access and sustainable food systems dedicated to agroecological products with governance and institutional support in place. All this will be achieved by good cooperation with stakeholders using participatory activities to include women and the youth in targeted support programmes. The first implementation phase includes an intense awareness campaign that will establish agroecological forums across the provinces in collaboration with civil society and non-profit organisations (NPO). The following phase will run in parallel to address the development of skills opportunities at different levels, and upscaling all activities to municipalities across the country. Throughout the implementation phases, there will be feedback with monitoring and evaluation using specific indicators to collect data, which will provide learning opportunities and feed into the revision of the agroecological transition programme. The resources needed for this comprehensive implementation plan are discussed, including providing for incentives to farmers, access to credit and financial assistance, as well as skills development and research programmes.

This NAFSA document includes the following sections:

- Introduction, including the vision and mission of NAFSA
- Policy alignment - from international to national
- Principles of Agroecology and the goals of the NAFSA
- Strategic Pillars and Objectives
- Stakeholder Engagement and Participatory Approaches
- Implementation Roadmap and Phases
- Resources and Incentives for Implementation
- Monitoring, Evaluation, and Learning (MEL) Plan including indicators, data, and evaluation tools
- Communication and Awareness Strategy
- Risk Management and Contingency Planning
- Concluding remarks and Call to Action.

The proposed transformation of the agricultural and food sector by introducing agroecological principles will influence all activities throughout the agriculture-food supply system and provide opportunities for those involved to provide more healthy food for all South Africans while benefiting the environment and water resources. This transformation process must be led by the farmers at the grassroots with participation and commitment of all affected parties, from

both the government, the private sector, and civil society organisations across the broad spectrum of agriculture, environment, food, transport, retail, and trade sectors. This will result in improved food security and food sovereignty, reduced poverty, and improved health and well-being across the South African population while improving climate resilience, animal welfare, and reducing gender inequalities.

1 INTRODUCTION

1.1 SETTING THE SCENE

Agroecology is an integrative approach to sustainable agriculture and food systems that combines ecological principles and traditional knowledge to create environmentally sound and socially equitable food systems. Rooted in the principles of ecological balance, diversity, and resource efficiency, agroecology seeks to enhance interactions between plants, animals, humans, and the environment, thereby promoting resilience, productivity, and sustainability (FAO, 2018). Agroecology is an emerging paradigm that integrates ecological principles with workable agri-food systems, aiming to create sustainable food systems that are environmentally sound, economically viable, fair, and socially just. Historically, agroecology emerged as a scientific discipline in the mid-20th century, focusing on applying ecological principles to agricultural systems. Over the years, it evolved into a more holistic framework encompassing social, economic, and cultural dimensions. In Africa, agroecology is gaining recognition as a viable pathway to sustainable agriculture, leveraging traditional farming knowledge to promote sustainable farming and livelihood diversification.

The structure of this NAFSA document will be as follows:

- Introduction, including the vision and mission of NAFSA
- Policy alignment – from international to national
- Principles of Agroecology and the goals of the NAFSA
- Strategic Pillars and Objectives
- Stakeholder Engagement and Participatory Approaches
- Implementation Roadmap and Phases
- Resources and Incentives for Implementation
- MEL plan, including indicators, data, and evaluation tools for the duration of the transition
- Communication and Awareness Strategy
- Risk Management and Contingency Planning
- Concluding remarks and Call to Action.

The NAFSA aims to promote sustainable agricultural practices that align with the country's socio-economic and environmental goals. This framework serves as a blueprint for transforming the agricultural sector by incorporating agroecological principles to address pressing challenges, ensure food security and food sovereignty, and support rural development through building strong communities. The framework should be regarded as a living framework that can be modified and added to, as issues emerge, knowledge expands, and capacities change.

The South African agricultural landscape is characterized by its continuum of producers, ranging from homesteads and backyards, through smallholders and medium-scale producers, to large-scale, well-developed commercial agriculture. The commercial sector significantly contributes to the country’s Gross Domestic Product (GDP), employing advanced technologies and producing goods for both domestic and export markets. Homestead smallholder farmers face numerous challenges, including limited access to natural and financial resources, knowledge, markets, and extension services. The agricultural sector is also shaped by diverse agro-climatic zones across the country that are suitable for a wide range of cropping and

livestock production systems. Much of this diversity is threatened by climate change and the resultant shifting agro-climate zones, land degradation, and soil and water pollution.

Despite its strengths, South African agriculture is fraught with challenges. Climate change poses a significant threat, with rising temperatures, erratic rainfall patterns, and increased frequency of extreme weather events that increase risks and adversely impact crop yields and livestock production. Water scarcity is another pressing issue, with high levels of water use by irrigated agriculture, exacerbated by higher water demand due to increased temperatures and lower rainfall, resulting in less water available, together with inefficient irrigation practices. Socio-economic challenges such as inequality, limited access to land for smallholder farmers, threats to land from mining, and inadequate policy support further hinders inclusivity and resilience in the sector. Moreover, the heavy reliance on toxic pesticides/insecticides and synthetic chemical inputs has contributed to soil degradation and loss of biodiversity, undermining long-term sustainable productivity.

Agroecology offers a transformative approach to addressing these challenges by integrating and adopting agroecological principles into agricultural-food systems. It emphasises biodiversity, soil health, water efficiency, and phasing out of toxic pesticides and synthetic chemical inputs, thereby creating systems that are both productive and sustainable. Agroecology also recognises the importance of local knowledge and participatory approaches, empowering smallholder farmers to play an active role in shaping their agricultural systems. By fostering resilience to climate change, promoting social equity, and enhancing food sovereignty, agroecology aligns with the need for a more inclusive and sustainable food system in South Africa.

Agroecology, Conservation Agriculture (CA), and Regenerative Agriculture (RA) share core principles focused on soil health, biodiversity, and sustainable practices, though agroecology is a broader, holistic approach to agri-food systems with a strong emphasis on social, economic, and cultural factors, while CA and RA are more focused on specific farming techniques. Shared practices include minimal soil disturbance, permanent soil cover, and diversified crop rotations.

1.2 Overview of South Africa's Current Agricultural Landscape and Challenges

South Africa boasts a relatively advanced, yet diverse, agricultural sector compared to other African nations, contributing significantly to the country's economy and food security. However, it faces substantial challenges, including climate change-related weather variability, rising input costs, land reform concerns, and infrastructure limitations, particularly regarding water access and distribution, impacting all farmers along the continuum from large-scale commercial farms and homestead and smallholder farmers. South Africa produces a wide range of agricultural products, including fruits (citrus, grapes, avocados), vegetables, wine, grains, and livestock products, with a large portion being exported. The industry comprises both large-scale commercial farmers using modern technology and smallholders producing a range of vegetables and maize, primarily for household and local food security. There are disparities in access to resources and market participation.

The major challenges facing South African agriculture include the following:

- **Climate change -** unpredictable weather patterns, including droughts and floods pose a significant threat, negatively impacting crop yields and livestock production, particularly in regions dominated by rainfed production practices.

- **Water scarcity -** limited water availability, especially in certain regions, poses a major constraint for irrigation and overall agricultural productivity.
- **Rising input costs -** increasing prices of conventional agricultural inputs, such as fertilizers, fuel, pesticides, and certified seed, and other production inputs that put pressure on farm profitability.
- **Land reform complexities -** ineffective land redistribution and restitution programmes that have not rebalanced land ownership and access in an equitable way, due to poor resources and appropriate knowledge and support, while creating uncertainty for farmers and impacting investment decisions in the sector.
- **Infrastructure limitations** - inadequate transport networks, including poor road infrastructure, poorly functioning local aggregation and storage facilities for smallholder producers, poorly maintained energy and water infrastructure, as well as port facilities that hinder the efficient movement of agricultural inputs and products.
- **Market access and price volatility** - fluctuations in global market prices can have a significant impact on farmer incomes, while poor access to diverse marketing channels limits profitability.
- **Smallholder farmer challenges -** limited access to land and natural resources, finance, appropriate technologies for agroecology, training, information, and markets at all levels that often restrict the potential of smallholder farmers.
- **Labour issues** - low wages, poor working conditions, and insecure tenure for farm workers and dwellers, limited seasonal labour availability that can disrupt agricultural operations in certain regions, and issues around permission to occupy certain lands.

Many of these challenges are addressed under the agroecological principles and in viable, sustainable agroecological production and distribution systems. Therefore, the transition to adopt agroecology should be carefully considered using scientific evidence-based information to guide the changeover into an alternative farming system that is adapted to climate change and resilient to climate variability. Agroecological areas of South Africa should be transformed according to the potential provided by the agroclimatic and soil conditions to produce good, healthy food. One needs to consider ecological principles together with soil and animal health when selecting sustainable systems with high biodiversity. Then the transition will be from the current monocropping or sole-cropping and poor grazing systems to more diversified farming systems with the integration of a variety of crops and farmed animals that promote good soil health and produce healthy food products. The economic aspects need to be constantly carefully considered when making such a transition, to maintain and strengthen farm economic viability and resilience. As regards social aspects, the local communities, both rural and peri-urban, must be centrally involved because their livelihoods, skills, and capacity to build a vibrant community with good connections between the producer and the consumer are relevant.

In most countries, such a transition has not been possible on a large scale without sustained and appropriate external inputs of support, funding, and expertise from international sources, non-governmental organizations, or from national governments (Shroff et al., 2024). In most African countries, there has been substantial support and drive from the civil society movement to enable such a transition to take place.

1.3 Description of Agroecological Zones and the Preservation and Development of Agricultural Land Act

1.3.1 Description of agroecological zones

In anticipation of the implementation of the Preservation and Development of Agricultural Land Act 39 of 2024 (PDALA) (assented to by the President on 20 December 2024, GN 5791 in GG 52009 of 29 January 2025), DALRRD has embarked upon a process of developing the required regulations for the Act. This includes defining and geospatially delineating uniform agroecological areas (zones or regions) for agricultural land in South Africa. The envisioned management of these areas should be based on agroecological principles and approaches, as explained elsewhere in this document. Spatially delineated agroecosystems necessitate appropriate, tailored agroecological approaches, techniques, and methodologies to manage these distinct systems effectively. Such approaches should consider the unique socio-ecological characteristics and interactions within specific geographical and ecological boundaries. Appropriate techniques might include crop selection, diversification, appropriate soil fertility and ecological pest management, integration of production into wider biodiversity conservation, and re-embedding food systems in the local context, all of which should be designed to enhance biodiversity, resilience, productivity, and sustainability of the agroecosystem. Methodologies such as participatory action research, adaptive management, and co-creation ensure that local knowledge and scientific insights are integrated, enabling continual adaptation and improvement. By focusing on the specificity of each agroecosystem, these agroecological practices support both environmental health and agricultural productivity, thereby contributing to food security and food sovereignty, and sustainable development.

Agricultural land will be divided into eleven primary agroecological areas. Each primary area will be subdivided into three socio-economic zones. Each resultant entity will be further divided into irrigable or rainfed areas and further defined by production potential, labelled as high, medium, or low potential. The currently proposed agroecological zones are for commercial agriculture (**Table 1**). To accommodate the resource-limited smallholders and resource-poor supplementary households, these agroecological zones have been expanded to occur in the middle (M) and low potential areas (L) for stone and pome fruits, viticulture, vegetables, shrub and bush crops. Further details are given with a summary of the descriptions of the agroecological areas across South Africa (**Table 1**) (ARC-DoA Project No A128, 2024).

Table 1 Description of the proposed agroecological areas for South Africa.

Description (Agroecological & Socio-economic)	**I**	**R**	**H**	**M**	**L**
Type of Farming System					
Summer Field Crops	■	■	■	■	■
Winter Field Crops	■	■	■	■	■
Tropical / Subtropical Fruits & Nuts	■		■		
Sugar Cane	■	■	■	■	■
Stone & Pom Fruits	■		■		
Viticulture	■	■	■		
Vegetables	■		■		
Shrub & Bush Crops (Teas / Oils)		■			■
Dairy / Intensive Pastures	■	■	■	■	■
Extensive Livestock / Game		■	■	■	■
Forestry		■	■	■	■

(I = Irrigated, R = Rainfed, H = High potential, M = Medium potential, L = Low Potential)

1.3.2 Preservation and Development of Agricultural Land Act 39 of 2024

The PDALA is a critical legislative tool supporting agroecological initiatives in South Africa. It seeks to protect valuable agricultural land from urban encroachment and ensure its optimal use for sustainable food production. By prioritizing agroecological practices, PDALA will contribute to maintaining soil fertility, conserving biodiversity, and promoting equitable land access. In addition, its provisions can strengthen the alignment of national policies with the principles of agroecology, thus creating an enabling environment for the implementation of the NAFSA.

A key objective of PDALA is to safeguard prime agricultural land from conversion into use for non-agricultural purposes such as urban development, mining, etc. This protection is critical for maintaining the long-term productivity of agricultural land and preventing the loss of soil fertility, which is, in most instances, difficult to restore once degraded. PDALA also seeks to promote sustainable land management practices that align with agroecological principles, such as conserving soil health, maintaining biodiversity, and optimizing water use while continuing sustainable food production.

In addition to protecting land, PDALA aims to promote equitable access to agricultural land, particularly by providing opportunities for historically disadvantaged communities. By integrating agroecology into its provisions, PDALA has the potential to empower smallholder and emerging farmers, providing them with a framework for sustainable production and greater participation in the agricultural economy. PDALA provides the Ministry of Agriculture with legislative ownership of agricultural land, and the Minister is empowered to mobilize resources towards capacitating smallholder farmers with skills and other resources for sustainable exploitation of land.

1.4 Vision and Mission of the National Agroecology Initiative

Vision:
"An Agroecologically Transformed Agri-Food System with Secure Livelihoods."

Mission:
"To transform the South African agri-food system, using agroecological principles, into a sustainable, viable, diverse, resilient, inclusive agri-food sector contributing to a healthy and secure society."

2 POLICY CONTEXT AND ALIGNMENT

2.1 INTRODUCTION

This policy context section considers some of the key existing laws and policies that align with agroecology, as well as some laws and policies that present an obstacle to the promotion of agroecology in South Africa.

2.2 KEY AGREEMENTS, LAWS, AND POLICIES ALIGNING WITH AGROECOLOGY

2.2.1 Global agreements to which South Africa is a signatory

- **The UN Framework Convention on Climate Change of 1994**

South Africa, as a signatory, ratified the UNFCCC, which is legally binding. UNFCCC aims to coordinate global actions to reduce greenhouse gas emissions and to facilitate adaptation and resilience in the face of the impacts of climate change. Parties to the Convention have committed to the development of Nationally Determined Contributions (NDCs), which set national targets for emissions reductions. Parties have also committed to the development and implementation of National Adaptation Strategies and sector adaptation and mitigation plans. For South Africa, this includes the agri-food system, which is an important source of emissions and faces increased vulnerability because of climate change impacts. Much has been written on the adoption of sustainable agriculture as an important response both to reducing emissions through soil restoration and increased carbon sequestration in the soil, and fostering biodiversity, and as a key adaptation and resilience measure.

The Global Commission on Adaptation (GCA), which South Africa participates in, has highlighted the threats posed by climate change to food security and farmer livelihoods, with Southern Africa facing multiple climate-related hazards (Global Center on Adaptation, 2021). For agriculture, the GCA focuses on climate-resilient interventions particularly targeted at smallholder farmers and women. The GCA makes specific reference to agroecological approaches, including agroforestry, crop residue retention, an increase in crop rotations including legumes, and integrated pest management. It calls for improving the evidence base on the effectiveness of different agroecological approaches. It also points to the importance of ecosystem restoration through participatory processes for climate adaptation. The climate resilience agenda for agriculture aligns with other UN Conventions on biodiversity that South Africa is a signatory to, including the 1992 Convention on Biological Diversity (Convention on Biological Diversity, 2022 & 2025) and land restoration of the 1994 Convention to Combat Desertification (UNCCD, 2025). The aforesaid conventions are legally binding for South Africa.

- **The 1994 United Nations Convention to Combat Desertification**

South Africa is a signatory to the 1994 United Nations Convention to Combat Desertification (UNCCD), and it is legally binding. The assessment of South Africa’s Land Degradation Neutrality (LDN) targets offers valuable insights into the country's progress, challenges, and gaps in reaching its 2030 land restoration objectives. Findings indicate that, while significant progress has been achieved in some areas, many targets remain largely unmet, requiring a strategic review and realignment of current targets. The assessment aims to review current targets, refine existing commitments, and identify new LDN targets that are spatially explicit

and feasible. A key focus of this exercise will be aligning LDN target-setting with municipal boundaries, providing a more localised and structured approach to land degradation mitigation, restoration, and sustainable land management.

- **The 2015 UN Sustainable Development Goals**

The 2015 UN SDGs are not legally binding on participating countries, but countries do commit to certain actions. The 2030 Agenda for Sustainable Development calls for a new agricultural approach to ensure sufficient, safe, and nutritious food while respecting human rights. The UN Food and Agriculture Organisation (FAO) recognises agroecology "*as a key response to guide the sustainable transformation of our food systems*" in relation to the SDGs. The FAO highlights the strong links with agroecology for 15 of the 17 SDGs (FAO, 2025). The links between the SDGs and agroecology can be delineated into three dimensions, namely environmental, social, and economic dimensions.

The environmental dimensions include optimal use of local and renewable resources, harnessing of ecosystem benefits, sustainable use and conservation of biodiversity, minimising the use of harmful agrochemicals, resilience in production systems, efficient water use and soil water retention, climate change mitigation through reduction in greenhouse gas emissions, climate resilience and adaptation, locally adapted crops, ecosystems approaches, and land restoration.

The social dimensions include the need for prioritisation of the most marginal and vulnerable, territorial and integrated development approaches, knowledge adapted to local contexts, peer-to-peer knowledge sharing, the key role of women, co-creation of knowledge, strong and inclusive producer organisations, solidarity, increased cooperation, and decent rural employment opportunities for youth and women. They also include diversification for healthy and nutritious diets, and promotion of local diets, food traditions, and traditional knowledge. The economic dimensions include the reduction of food loss and waste, the reduction of production costs, and shorter supply chains.

- **The UN Convention on Biological Diversity Global Biodiversity Framework**

The 2022 Kunming-Montreal Global Biodiversity Framework (GBF) (Convention on Biological Diversity, 2022), to which South Africa is a party, is a product of the 1992 UN Convention on Biological Diversity (CBD). The GBF is legally binding for South Africa. It sets numerous targets that directly integrate agroecology as a response to biodiversity loss. Parties to the CBD have committed to integrating GBF targets into National Biodiversity Strategy and Action Plans (NBSAPs). GBF Target 10 explicitly mentions agroecological approaches and biodiversity-friendly practices in agriculture, fishing, and forestry. Target 6 calls for the reduction of invasive alien species by at least 50% by 2030. Target 7 calls for more efficient nutrient recycling and use, and the reduction by at least half of excess nutrients [from fertilisers] lost to the environment. The same target further calls for the reduction of the risk from pesticides and highly hazardous chemicals by at least half. Targets 12 and 14 call for mainstreaming of conservation and use of biodiversity, and its full integration into policies, plans, and regulations. Target 13 calls for fair and equitable sharing of benefits from the use of genetic resources. Target 16 calls for the halving of food waste by 2030. Target 18 calls for the phasing out of subsidies harmful to biodiversity and the scaling up of positive incentives for the conservation and sustainable use of biodiversity. This relates directly to South Africa's agricultural input subsidy programmes. Targets 22 and 23 call for full, equitable, inclusive,

effective, and gender-responsive representation and participation in decision-making, and access to justice and information, including equal rights and access to land and natural resources for women. Multiple targets call for participatory ecosystem-based approaches and restoration of ecosystem services, incorporating local and indigenous knowledge.

The Department of Forestry, Fisheries, and the Environment (DFFE) is the responsible department for domestication and implementation of the GBF. At the provincial level, the DoA shares responsibility for implementing the NBSAP as related to agricultural ecosystems. Agroecology can assist the South African government to realise the biodiversity objectives.

- **The 2021 UN Food Systems Summit**

The UN Food Systems Summit (UN FSS) was initiated in 2021 to guide the world to sustainable food systems by 2030. South Africa participated in the Summit. Agroecology is highlighted as an important approach to building sustainable agriculture and food production. An Agroecology Coalition emerged from the Summit to promote agroecology as a key solution for sustainable food systems transitions (Agroecology Coalition, 2025). The Coalition currently has 325 members, including national governments, multilateral institutions, civil society organisations, and research institutions. Twenty-three African governments have joined the Coalition to date, including 6 from Southern Africa. Participating governments in the UN FSS committed to developing national transformation pathways. South Africa has developed four pathways: i) enhance sustainable local production for local consumption of safe, nutritious, and indigenous foods; ii) promote social, economic, and environmental resilience; iii) facilitate inclusive, sustainable, and competitive value chains; and iv) promote integrated food systems policies, legislation, planning and governance (DALRRD and FAO, 2021). Agroecology is a key response across these pathways and received endorsement from the Minister of Agriculture at the UN FSS +4 stocktake meeting held in Ethiopia in 2025, where he stated: "*We are actively encouraging our farmers to embrace regenerative agriculture, agroecology, and conservation practices. These approaches are designed to restore land, improve biodiversity, and future-proof local food systems in the face of climate volatility*" (South African Government, 2025). The pathways will inform the implementation of the National Food and Nutrition Security Plan (approaching finalisation at the time of writing), which has adopted the High-Level of Experts (HLPE) 13 principles of agroecology as one of the sustainability filters through which the Plan should be viewed.

- **The 2001 International Treaty on Plant Genetic Resources for Food and Agriculture**

The South African government acceded to the 2001 International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) at the end of 2024 and is thus legally bound by it. The Treaty covers general obligations on sharing and use of plant genetic resources for food and agriculture; farmers' rights; establishment of a multilateral system of access and benefit sharing; supporting elements such as a plan of action, research and ex situ collection; financial and institutional provisions; and an annex on the crops covered under the multilateral system (FAO, 2009). The contracting parties affirm the importance of the rights recognised in the Treaty to save, use, exchange and sell farm-saved seed and other propagating material, and to participate in decision-making regarding, and in the fair and equitable sharing of the benefits arising from, the use of plant genetic resources for food and agriculture. Article 9 on farmers' rights aligns closely with agroecology. It recognises the contribution of local and indigenous people and farmers to the conservation and development of plant genetic resources for food

and agriculture. The Article obliges contracting parties to take measures to protect and promote farmers' rights, including: i) protection of traditional knowledge relevant to plant genetic resources for food and agriculture; ii) the right to equitably participate in sharing benefits arising from the use of plant genetic resources for food and agriculture; and iii) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.

- **The 2018 UN Declaration on the Rights of Peasants and Other People Working in Rural Areas**

South Africa was a champion of the 2018 UN Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP), which was approved by the UN General Assembly in 2018 (UNHRC, 2018). The UNDROP is not legally binding, but signatories commit to specific actions. The Declaration affirms 24 specific rights of peasants and other people working in rural areas, including the rights to participation, access to natural resources and to fair and equitable access and benefit sharing of the use of these resources generally (Art 5, Art 10, Art 17) and specifically for women (Art 4); the right to food and food sovereignty (Art 15); the right to a clean, safe and healthy environment (Art 18); the right to seeds, including protection of traditional knowledge related to plant genetic resources, and the rights to save, use, exchange and sell seed (Art 19); the right to biological diversity (Art 20); the right to water and equitable access to water (Art 21); and cultural rights and traditional knowledge (Art 26). States commit to stimulating sustainable production, including agroecological and organic production, and to support transport, processing and storage, and market access of the products (Art 16); that seed policies, plant variety protection and marketing laws take into account the right to seeds indicated in Article 19; and to promote and protect the traditional knowledge, innovation and practices, including agroecological systems relevant to the conservation and sustainable use of biodiversity (Art 20). Although the Declaration is not statutory, States which support it commit to take prompt legislative, administrative and other appropriate steps to realise these rights through participatory processes (Art 2).

- **The 1975 Ramsar Convention on Wetlands**

The Ramsar Convention on Wetlands, or Convention on Wetlands of International Importance (named after the place of adoption in Iran), is an intergovernmental treaty that provides the framework for international cooperation for the conservation of wetland habitats. The Convention entered into force in late 1975. South Africa is legally bound to deliver on its goals. The Convention covers a wide variety of wetland habitats, including rivers, lakes, ponds, marshes, peatlands, coastal areas, estuaries, and coral reefs. The Convention places numerous obligations upon the Contracting Parties for the wise use of wetland habitats, for special conservation requirements of wetland sites designated in the "*List of Wetlands of International Importance*", for the creation of wetland reserves, for international cooperation on shared waterbodies and wetland species, for the training of wetland personnel, and for the promotion of public awareness of conservation. In South Africa, the agricultural sector is the largest consumer of both surface and underground water, and agricultural projects may be established on wetlands. Agroecology has a role to play, particularly at the landscape level, through reducing excess nutrient and toxic chemical flows into wetlands and reducing soil erosion.

2.2.2 Continental and regional agendas and agreements

- **The AU's Agenda 2063**

The African Union's Agenda 2063, launched in 2014, starts with seven broad aspirations for a continent of shared prosperity and well-being, based on unity and inclusion (African Union, 2013). Agriculture, nutrition, environmentally sustainable climate, resilient economies and communities, decolonisation, democracy, equality, and human rights are key features of the Agenda. Climate-resilient production amongst farmers, fishers, and pastoralists is one of the key transformational outcomes. Sustainable natural resource management and biodiversity conservation, sustainable consumption and production, and climate resilience are environmental priorities. Agenda 2063 aligns closely with the SDGs.

- **The African Union Comprehensive Africa Agricultural Development Programme Kampala Declaration and Strategy and Action Plan 2026-35**

South Africa is a signatory to the Comprehensive Africa Agricultural Development Programme (CAADP), and although not legally binding, South Africa is committed to delivering the goals set out in the declaration. The Kampala Declaration on Building Resilient and Sustainable Agrifood Systems in Africa (AU, 2025a) was adopted by AU members in January 2025. The Declaration adopts an agrifood systems approach. It refers to agriculture in general but also makes specific reference in places to practices that align with agroecology. In the Declaration, members resolved to promote the widespread adoption of sustainable agricultural practices that conserve resources, protect ecosystems, and ensure long-term productivity and production (1a); promote agrifood systems that enhance nutrition and health outcomes, promoting diets that contribute to overall well-being (3a); boost the production and consumption of nutritious traditional and indigenous crops, animals, fish and fisheries products through specific policy and regulatory reforms and financing strategies for those value chains (3b); facilitate climate resilient and green jobs for youth, women and vulnerable groups, including in agriculture (4d); promote adaptation strategies within agrifood systems and livelihoods to reduce vulnerability to major shocks and stressors (5d); increase mobilisation of climate finance and technical assistance to support farmers, particularly smallholders and transition to low-carbon farming practices (5e); and to promote indigenous knowledge and practices, recognising their role in fostering environmental stewardship and resilience (5f). The Declaration calls on member states to integrate and reflect commitments in the Declaration in national policies, strategies, and budget frameworks, and calls on civil society organisations to promote sustainable and equitable agricultural practices in agrifood system transformation.

The Strategy and Action Plan (AU, 2025b) goes into detail on how the Declaration will be operationalised. It does not entirely embrace a transition to agroecology but includes a number of elements that point in that direction, including promotion of organic and biofertilizers, beekeeping to enhance pollination services, protecting and restoring habitats for pollinators, farmer field schools, rainwater harvesting, promotion of agroecological practices, agroforestry, multi-stakeholder dialogues, diversification of agricultural production, promoting the production and consumption of nutritious traditional and indigenous foods and cultural cuisine, reforestation and tree protection, restoration of degraded lands, increased access to productive resources, and renewable energy. The Strategy and Action Plan will also be implemented at the National Level.

- **The AU's 2024 Nairobi Declaration and Africa Fertiliser and Soil Health Action Plan 2023-33**

The Nairobi Declaration on Africa Fertiliser and Soil Health Action Plan (AFSH-AP) focuses on measures to increase soil nutrient content and soil health (AU, 2024). While it does embrace expansion of synthetic fertilisers, it acknowledges that "*the perspective on agricultural sustainability has evolved from a narrow crop productivity and profitability focus to a broader focus on social, environmental, and economic sustainability, climate change adaptation and mitigation, rehabilitation of degraded land, and restoration and maintenance of ecosystem services, including biodiversity*". In line with this recognition, member states committed, amongst other things, to provide incentives for local production, use and recycling of organic resources (1c); leverage opportunities offered by decentralized, low-carbon, and circular fertiliser production (1d); establish small and medium enterprises (SME), especially by youth and women, oriented to the production and distribution of organic fertilisers (1e); deploy innovative incentive mechanisms - including repurposing current subsidy programmes - to encourage soil health investments by smallholder farmers (4a); promote integrated soil and water conservation, planning, and management practices across agricultural sub-sectors and landscapes / watersheds (4b); promote organic agriculture practices to improve soil health alongside conventional agriculture (4e); and the operationalisation of the Africa Fertilizer Financing Mechanism (AFFM) to improve production, procurement, and distribution of fertilisers, including organic fertilisers (5). The Action Plan operationalises the Declaration, with strong recognition that organic fertilisers are a crucial part of soil health and nutrient response. National governments are committed to domesticating the Declaration and Plan. These activities are directly related to a transition to agroecology, as soil health is one of the HLPE 13 principles.

- **The 2025 SADC Regional Fertilizer and Soil Health Programme**

The Southern African Development Community (SADC) Regional Fertilizer and Soil Health Program is proposed to support the AFSH-AP (2024-2034) and the SADC Harmonized Fertilizer Regulatory Framework. The AFSH-AP was endorsed by African Heads of State during the 2024 AFSH Summit to drive actions towards enhanced soil health to maximise fertiliser efficiency, particularly on degraded soils, and to improve productivity in essential areas like grazing and forest lands. The current NAFSA promotes the utilization of organic fertilizer as a sustainable solution towards mitigating the negative effects of climate change.

- **The AU Ecological Organic Agriculture Initiative**

In 2011, AU members decided to establish a continental platform on organic farming and to support the development of sustainable organic farming systems (AU, 2011). Agroecology was included in the Ecological Organic Agriculture Initiative (EOAI), which emerged following this decision. In 2015, an EOAI 10-year Strategic Plan was developed to carry this work forward (AU, 2018). The Plan notes that while African countries are increasing their investments in agriculture, there is a challenge of "*the unsustainability of the modern and current agricultural production systems being promoted on the continent*". Ecological Organic Agriculture (EOA) is defined as "*a holistic system that sustains the health of ecosystems and relies on functional cycles adapted to local conditions, rather than the use of synthetic inputs which have adverse effects on total health (human, animal, plant and environmental)*". It aims to provide comprehensive support for the development of EOA practices on the continent. The mission is "*to scale up ecologically and organically sound strategies and practices through*

institutional capacity development, scientific innovations, market participation, public policies and programs, outreach and communication, efficient coordination, networking and partnerships in Africa". Core values are: i) biodiversity, respect for nature, and sustainable development; ii) promote family farming cultures, indigenous knowledge, cultural practices, and wisdom; iii) embrace fairness and justice to the ecosystem; and iv) promote safe, nutritious, healthy food. These show clear alignment with agroecology principles and practices. The EOAI has been active in East and West Africa, providing support on research, education and training, information and communication, value chain and market development, networking and partnerships, policy and programme development, and institutional capacity development. Southern African countries have been invited to participate. Country CAADP Focal Points are responsible for reporting to the African Union (AU) on in-country developments and activities.

2.2.3 Key national policies and laws

South Africa has many laws and policies that touch on elements of agroecology across several Departments. Such elements include circular economy and recycling, resilience, biodiversity conservation, economic diversification, participatory and community-based processes, peer-to-peer learning and sharing, indigenous knowledge, redress of past injustices, healthy and affordable food, redistribution of land and natural resources, and decent labour conditions (African Centre for Biodiversity, 2023). The NAFSA assembles all these elements into a coherent whole and fills many gaps based on the HLPE 13 principles. Selected laws and policies are highlighted below to indicate the strong basis in existing policies and laws for the transition to agroecological approaches.

- **The Constitution of the Republic of South Africa**

The Bill of Rights (Chapter 2 of the Constitution) guarantees the right to an environment that is not harmful to health and well-being, with reasonable legislative and other measures to prevent pollution and other ecological degradation, promote conservation, and secure ecologically sustainable development and use of natural resources (Art 24(b)). Article 27 provides for the rights of access to sufficient food and water, with reasonable legislative and other measures to realise these rights. In situations of conflicts regarding degradation of the environment, pollution, and contamination of natural resources, the constitution shall serve as a supreme law for mediation and arbitration, and therefore, it is crucial for enhancing the implementation of agroecology.

- **Natural Resources Legislation**

South Africa has a range of legislation to protect and conserve the natural resources of the country. Laws and policies promote the redistribution of, and secure access to, land and other natural resources to overcome historical injustices. The Conservation of Agricultural Resources Act (CARA) 43 of 1983 focuses on the conservation and preservation of natural resources in South Africa. CARA provides for control over the utilization of the natural agricultural resources of the Republic to promote the conservation of the soil, the water sources, the vegetation, and the combating of weeds and invasive plants. The Minister may prescribe control measures for land users regarding cultivation, irrigation, and vegetation protection. The Minister can establish schemes to provide financial assistance for soil conservation and restoration efforts.

The National Environmental Management Act 107 of 1998 (NEMA) establishes a framework for cooperative environmental governance in South Africa. It highlights the need for sustainable development and emphasises participation. Principles of environmental management include prioritisation of people's needs and promoting social equity, environmental justice, equitable access, minimisation of ecosystem disturbance and pollution, and waste management should focus on reduction, reuse, and responsible disposal. South Africa's commitment to international environmental agreements must be incorporated into national laws. Environmental decisions must be incorporated into all significant decision-making processes. Specific subsidiary Acts with strong relevance to agroecology include the National Environmental Management: Biodiversity Act 10 of 2004 (NEM:BA) and the National Environmental Management: Waste Act 59 of 2008.

The PDALA of 2024 aims to manage and protect agricultural land in South Africa. It recognises the importance of sustainable agricultural land use and encourages practices to this end. It establishes agroecological principles for the management of agricultural land, including that activities affecting agricultural land must be assessed within the context of an agroecosystem, the prevention of destructive land use changes, the avoidance of activities that cause significant disturbance, agroecosystem resilience, and support to vulnerable and disadvantaged farmers to ensure their participation and development. Provincial agriculture sector plans are required that promote food security and sustainable agriculture, and are compiled in a participatory manner. An important directive to be derived from the Act relates to the provisions for exclusive demarcation and for the protection of high-value agroecological land, in a manner that harmful practices emanating from mining, other forms of industrial economic activity, and conventional farming systems cannot negatively impact agroecology. PDALA also makes provision for resource mobilization in the form of training and funding for farmers.

- **Climate Change Act 22 of 2024**

The Climate Change Act (CCA) aims to develop an effective climate change response and a long-term, just transition to a low-carbon and climate-resilient economy and society in the context of sustainable development. The Act gives effect to South Africa's obligations under the UNFCCC, including mitigation of greenhouse gas emissions, and adaptation to the impacts of climate change. The Act is guided by the principles set out in NEMA. It binds all organs of state. It requires the development of a National Adaptation Strategy and Plan, and subsequent provincial and municipal strategies and plans. The objectives of the adaptation plans include a reduction in vulnerability to the effects of climate change, strengthening the resilience of the socio-economic and environmental systems, and enhancing the adaptive capacity of society, the environment, and the economy. Sectors identified in Schedules 1 and 2 of the Act, which must develop sector emissions targets and adaptation strategies and plans, include agriculture, forestry, fisheries, environment, rural development, and land reform.

The Presidential Climate Commission's the 2022 Framework for a Just Transition in South Africa (DFFE, 2022) emphasises adaptation and resilience, net zero emissions, poverty eradication, social inclusion, participation, the conservation of natural resources, a healthy environment, and "*sustainable, equitable, inclusive land use for all, especially for the most vulnerable*". Agriculture is identified as a risk sector. The Framework recognises the differential adaptive capacity between commercial and smallholder farmers and calls to address these existing inequalities as part of the just transition. It highlights the potential of restoration of degraded lands, the improvement of biodiversity, and climate-smart agriculture as job creators while also bringing important climate and environmental benefits. The empowerment

of community-based organisations to implement micro-projects will also support climate and broader societal resilience. The Framework is not binding but reflects the recommendations of the Commission to the President.

- **Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies, Act 36 of 1947**

The Agricultural Inputs Control (AIC) Directorate in the DoA oversees fertilisers, animal feeds, agricultural remedies, and stock remedies, ensuring the regulation and registration of agricultural inputs in South Africa, as mandated by Act 36 of 1947. The Act regulates the manufacturing, distribution, importation, sale, usage, and advertising of agricultural production inputs, and pest control operators and sterilising plant operations. The primary purpose of the Act is to protect human health, animal health, the agricultural industry, and the environment, while fostering economic growth, stability, and food security by guaranteeing that products are safe, effective, and of good quality and conform to specific regulatory requirements before sale or use. AIC regulates the manufacturers and sellers of agricultural inputs, animal feed, fertilisers, agricultural remedies, and stock remedies as they need to register their products before commercialisation and guarantee ongoing compliance. The registration procedure involves providing information (such as the product label, application form, formulation specifics, laboratory analysis report, efficacy data, etc.), and the information is assessed; registration is approved if it satisfies the required regulatory standards. AIC inspectors uphold the law and carry out inspections to guarantee that manufacturers and sellers maintain compliance.

Current laws may have gaps, insufficient enforcement measures, or fail to address new contexts, leading to reviews aimed at enhancing the regulatory framework. AIC continuously develops, reviews, amends, and enforces the regulatory framework (regulations, guidelines, legislation, and standard operating procedures) as needed. At present, bills for farm feed and fertiliser are under development, and similar actions are expected for other sections. The legislation is reviewed as needed to align with scientific and technological progress, evolving agricultural practices, policy, and objective harmonisation, respond to emerging environmental issues, ensure food safety and security, and uphold market dynamics and quality standards. There is a need to review the Fertilizer, Farm Feeds, Agricultural Remedies, and Stock Remedies Act, in line with agroecology principles, and to create space for the development of specific standards and regulatory measures for organic inputs.

- **National Water Act 36 of 1998**

The National Water Act (NWA), under the Department of Water and Sanitation, provides for the management of water resources. In terms of this legislation, farmers and land users are prohibited from using water without permission from the Minister of Water and Sanitation. There are some exemptions for smaller-scale producers. Farmer or other land users are prohibited from applying chemicals and herbicides that would pollute and contaminate water resources or cause harm to humans and animals. Agroecology can play an important role in conserving scarce water resources through practices that conserve soil moisture, protect the soil, create cooler microclimates, and integrate sustainable and non-toxic production practices at the landscape level.

- **The 2011 National Development Plan**

The National Development Plan (NDP) is the overarching development plan for the country. It proposed to create a million jobs in the agricultural sector by 2030, through promoting

smallholder farmer production, and increasing the area under irrigation by 50% by 2030. Although the drafters were not aware of agroecology at the time, there are some elements of the NDP agriculture chapter that point to climate-resilient production and the imperative for the conservation and sustainable use of natural resources. On review, the agriculture chapter of the NDP should more explicitly embrace an agri-food systems approach shaped by agroecological principles.

- **The 2022 Agriculture Agro-processing Master Plan**

The vision of the 2022 Agriculture Agro-processing Master Plan (AAMP) is to build a growing, equitable, inclusive, competitive, job-creating, low-carbon, and sustainable agricultural and agro-processing sector. The AAMP is aligned with the NDP. The AAMP's objectives are broad and not specifically related to agroecology, although agroecology could contribute. Broad policy objectives include increasing food security, creating an effective farm support system and agro-processing incentives, enhancing resilience to the effects of climate change, and promoting sustainable management of natural resources. Targets to be achieved by 2030 include: R32 billion real growth in agriculture value addition, maintaining 865 000 primary and 263 000 secondary agriculture jobs, and creating 72 000 new decent jobs; enhancing food security, which will support 303 000 livelihoods; and increasing the share of black farmers in overall production to at least 20%.

- **National Biodiversity Strategy and Action Plan, 2015-2025**

The NBSAP, draws impetus from existing legislation, such as the Constitution, NEMBA, and the SDGs. The objectives of NBSAP focus on enhancing biodiversity management, investing in ecological infrastructure (e.g., wetlands and healthy ecosystems), the science-based integration of biodiversity into sector plans, and mobilising people to adopt sustainable biodiversity practices. It promotes a landscape approach and ecosystem adaptation. The NBSAP provides room for the promotion of biodiversity as an integral component of agroecology, which could include the promotion of indigenous crops.

- **The 2018 National Policy on Comprehensive Producer Development Support**

The 2018 National Policy on Comprehensive Producer Development Support (NPCPDS) was approved by the Cabinet in 2024. It is "*the overall national policy for the agricultural sector in South Africa*" and will regulate and guide interventions provided to producers by the government. The policy defines farmer categories and calls for a defined share of government farmer support spending to be allocated to household and smallholder farmers. Specific objectives include protection, rehabilitation and improvement of scarce natural resources including using an agroecosystem planning framework and agroecological principles (s(3)(2)(4)), and transforming the sector through facilitating and mainstreaming the participation of previously disadvantaged individuals including youth, women and persons with disabilities in the agricultural sector (s(3)(2)(6)). Guiding principles include sustainable management of natural resources, equitable access to producer support, and participatory planning. Throughout the document there are references to promoting agroecological practices such as mulching, rainwater harvesting, access to land, participatory approaches, farmer-to-farmer learning and extension, regenerative farming systems, indigenous crops and knowledge, agroforestry, gender-responsiveness, agroecological and environmentally-friendly mechanisation, investment in research on agroecology and healthy and resilient farming, adoption of sustainable land management practices, soil and rangeland health, climate-smart

agricultural practices, adoption of organic farming and agroecological approaches, biodiversity conservation, and small-, medium- and micro-enterprise development.

- **The 2017 Conservation Agriculture Policy**

The Conservation Agriculture Policy (CAP) draws on an agroecological framework (referred to broadly as integration of the interactions between plants, animals, humans, and the environment within agricultural systems), with an emphasis on three core practices: i) minimum soil disturbance; ii) permanent organic ground cover; and iii) crop diversification incorporating crop rotations and intercropping. It seeks the reduction of external synthetic inputs (fertilisers, pesticides, and herbicides) for ecosystem health. The draft policy is significant in its orientation towards sustainability practices in the large-scale commercial sector, especially grains, although these practices can also be extended to smallholder farmers. The three core practices are also agroecological practices, although they do not comprehensively cover the entirety of agroecology as defined in the NAFSA.

2.3 Laws and Policies That Pose an Obstacle to the Promotion of Agroecology in Practice

While there are significant statements in existing policies and laws favouring the adoption of sustainable farming practices, including diverse elements of agroecology, several laws and policies are formulated for large-scale conventional agriculture that may pose obstacles to the implementation of agroecology. This is primarily because they adopt a blanket approach to agriculture instead of sufficiently differentiating between producers and systems. Key laws are identified below, with an indication of the obstacles they present for the realisation of agroecology in South Africa.

- **Plant Breeders Rights Act 12 of 2018**

The Plant Breeders Rights Act (PBRA) provides for a system for the granting of plant breeders' rights on certain varieties, requirements for granting such a right, and the scope and protection of these rights. The objective is to allow breeders a period of exclusive ownership of new plant varieties within a defined list of crops. While the main aim of PBRA is to protect newly developed plant varieties through the grant of intellectual property rights to allow researchers and breeders to recover monies spent in developing new varieties, the Act was promulgated in an environment where there is inequality. Inequality is prevalent at all levels of the social spectrum, especially when it comes to the rights of small-scale farmers. At the level of information sharing, a significant number of small-scale farmers are marginalised and sidelined to the extent that they do not participate in the technology development process, and therefore, protection of plant breeders' rights does not benefit them. While indigenous crop species, adaptable to local conditions, exist, the Indigenous Knowledge System (IKS) lies in the hands of small-scale farmers. However, these resources are not incorporated into mainstream commercial breeding processes. Furthermore, open-pollinated varieties and landraces by law cannot be recycled from one season to the next, and small-scale farmers cannot commercialize these resources. So, in essence, PBRA was developed to cater to the needs and interests of the more advanced commercial agricultural sector. Concerns from an agroecology perspective, with the Act relate to its emphasis on protecting breeders' rights, giving breeders extended leeway to exclusive control of seed varieties for up to three decades. Section 10 of the Act offers exceptions for homestead and smallholder farmers. The PBRA also undermines the ability of resource-poor farmers to adapt seed in their possession to local conditions through

saving from plants that perform well under their specific conditions (essential for food security in the context of climate change).

- **Plant Improvement Act 11 of 2018**

The Plant Improvement Act (PIA) 11 of 2018 provides for quality standards, evaluation of varieties, and business registration for the production and handling of seed for sale. Section 23 does offer exemptions regarding certain plants and propagating material, "*for private and non-commercial purposes by the producer thereof for own use*" (s23.1b) and the sale of "*non-commercial varieties of the kinds of plants regulated by this Act*" (s23.1d). A "*non-commercial variety*" is defined as "*an unprotected variety of any kind of plant regulated by this Act that is available for cultivation and sale on such non-commercial scale as may be prescribed*" (s23.2a) and any open-pollinated variety of plants and seeds regulated by the Act (s23.2b). Regulations are still forthcoming on the definition of "*non-commercial use*" and "*non-commercial scale*", but this poses a potential restriction on saving seed for their own commercial use and a possible limit on smallholder farmers who are seeking to expand their seed production enterprises into commercial scale but are still within the definition of smallholder as provided for in the NPCPDS.

The PIA further indicates that a variety is only eligible to be sold if it appears on the National Variety List. The conditions for listing include that the variety must follow the DUS (distinct, uniform and stable) criteria (s27), that the variety is distinguishable from other varieties already on the list, that the characteristics are sufficiently uniform, and that the "*characteristics of the variety remain unchanged after repeated propagation*". However, key characteristics of farmer seed are precisely the lack of standardisation and its heterogeneity in the field of landraces. Recognising the limits of DUS for farmer seed, several countries have started experimenting with developing alternative or adapted standards for farmer and organic seed (e.g., De Jonge et al., 2021).

Understandably, these Acts may apply to large-scale commercial farmers, and the exceptions and exemptions do offer some space for homestead and smallholder farmers to operate without the restrictions the Act imposes. However, a proactive and participatory approach is needed that defines appropriate standards and support mechanisms to enable household and smallholder farmers to enter seed multiplication and to save, adapt, and share seed in their possession based on their needs and context without transgressing the law.

- **Genetically Modified Organisms Act 15 of 1997**

The Act permits and regulates the use of genetically modified organisms (GMOs) in South Africa. This has opened the door to the distribution of GMO seed to smallholder farmers, posing a threat to biodiversity, promoting monocultures, entrenching corporate power over seed systems in South Africa, and posing a threat as they contaminate farmer varieties with unwanted traits (Wynberg and Hilbeck, 2024).

Other Acts that regulate the production, distribution, and standards for fertilisers and pest control products are outdated, do not recognise or accommodate natural and organic inputs, or impose standards that are designed specifically for synthetic products. Such Acts require review and updating to incorporate the latest scientific evidence on soil fertility and pest management, to review the availability of toxic pesticides in South Africa, to open space for multiple pathways and standards for diverse products, and to increase transparency, access to

decision-making, and participation in the regulation of these products. These Acts were developed to regulate the production and use of agricultural inputs with the large-scale conventional commercial sector in mind. They may serve that function. However, the standards and requirements are not necessarily all appropriate for smallholders and/or agroecology farmers. Laws and regulations may be reviewed and revised, but there is also a need for alternative legal mechanisms and regulations that can support agroecology farmers to save, multiply, exchange, and sell seed in their possession, as well as to produce and distribute organic fertilisers and pest management products.

2.4 Programmes and Plans that can Promote Agroecological Practice

The 2017 National Plan for Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture (NPPGRFA) offers a space for support to farmer seed systems, although it is underfunded and, in its current form, can only provide limited support to farmers. The Plan includes crop diversification, seed production and distribution, restoration of lost crops, seed sharing, and in situ and ex situ conservation.

Several existing programmes can be adapted to align with support for Agroecology. These include the input supply programmes (such as the 2003 Comprehensive Agricultural Support Programme, 2011 Ilima/Letsema, and 2013 Fetsa Tlala programme) that form a good basis for allocating resources to agroecology producers. However, there are issues related to the centralised tendering process that make it difficult for farmer-based or small enterprises producing organic and natural inputs to register and participate. Space should be made for these ecological input producers within these farmer support programmes, as well as more generally making it easier for agroecology producers to access support through these programmes, which are currently designed to deliver inputs for conventional agriculture. This can also support the redirection of subsidies towards biodiversity-friendly practices in accordance with the GBF Target 18, and repurposing of the subsidy programmes to encourage soil health investments as indicated in the Nairobi Declaration on Africa Fertiliser and Soil Health.

The National Food and Nutrition Security Plan (NFNSP) 2024-29 (currently being finalised) recognises the HLPE 13 principles of agroecology as a key filter through which all actions deriving from the Plan should be assessed. Support for agroecological food systems is indicated throughout the Plan, and alignment with the food systems pathways holds great potential to consolidate support for agroecology.

2.5 Recommendations for Improved Regulatory and Policy Measures to Enable Upscaling of Agroecology

- Key international, continental, and regional Conventions, agreements, and commitments as indicated above should be domesticated in national policies and laws, with programmes and budgets developed for implementation in alignment with agroecological principles.
- The DoA and ARC should engage with other relevant departments and directorates to ensure alignment and incorporation of NAFSA with other existing plans and programmes that offer space for inclusion of agroecology. These include the NBSAP, NFNSP, the National Plant Genetic Resources Plan, Comprehensive Agricultural Support Programme (CASP), Ilima/Letsema, and the agriculture sector Climate Change Adaptation and Mitigation Plan. Most of these are the mandate of directorates within the DoA, except for the NBSAP, where DFFE is the lead department.

- The DoA should undertake a review of key policies and laws that constrain the free development of support for agroecology in South Africa. These can be separated into laws that are outdated and need revision, and laws that may serve a purpose for regulating large-scale commercial agricultural practices, but which are not appropriate for agroecological farmers and/or smallholder support enterprises.
- Laws that are outdated or need revision include the Fertiliser, Farm Feeds, Agricultural Remedies, and Stock Remedies Act 36 of 1947 and the Agricultural Products Standards Act 119 of 1990.
- Laws that require exemptions for agroecological farmers and enterprises, where there may be a need for the development of separate law or policy to cover the specific needs of these farmers and enterprises, include the PBRA, PIA, and the GMO Act.
- It is recommended that the DoA develop multi-actor, inclusive and transparent processes for review, alignment, revision and drafting of the relevant policies, laws and programmes/plans as indicated above, intending to establish an enabling legal, policy and implementation environment for the promotion of agroecology within the next 5 years.

3 AGROECOLOGY PRINCIPLES AND NAFSA GOALS

3.1 CORE PRINCIPLES OF AGROECOLOGY

Agroecology is an integrated approach that applies ecological principles to the design and management of sustainable food systems. It encompasses a range of social, economic, and environmental aspects and emphasizes the interconnectedness of these aspects in agriculture. The United Nations Food and Agriculture Organisation (FAO, 2018) endorsed the 10 elements and 13 principles of agroecology of the High-Level Panel of Experts (HLPE, 2019) on Food Security and Nutrition to the Committee on World Food Security. These elements and principles have been adopted as an analytical framework to guide the development of tailored approaches for transforming agriculture and food systems (Gliessman, 2020). The HLPE principles are being used as they integrate and align with the FAO's 10 elements (**Appendix 1**).

When considering different approaches to improve the sustainability of agricultural systems, some of the common principles include permanent soil cover (mulch or cover crop), crop-grazing rotation, reducing chemical use (using integrated pest management (IPM)), and preserving soil moisture (**Figure 1**).

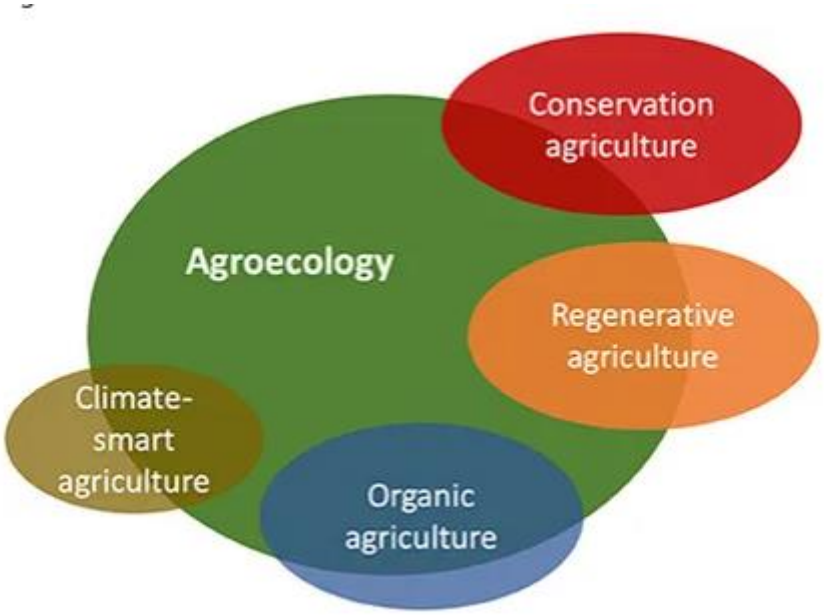

Figure 1 The relation between agroecology (science, practice, and movement) and other approaches to sustainable agriculture, depicting their degree of overlap as intersecting sets (after Tittonell et al., 2022).

The following are the 13 Principles of agroecology presented by the High-Level Panel of Experts on Food Security and Nutrition (HLPE, 2019):

3.1.1 Recycling

Agroecology focuses on the sustainable use of natural resources by recycling biomass, nutrients, and energy within the farming system. This approach reduces reliance on external inputs like

synthetic fertilizers and minimizes waste. Examples include composting organic matter, using animal manure as fertilizer, and combining crop and livestock systems.

3.1.2 Input reduction

Agroecology eliminates toxic pesticides and synthetic fertiliser inputs to protect human and other species' health, biodiversity, and ecosystems. Agroecology promotes natural pest control methods, organic fertilization, and ecological pest management.

3.1.3 Soil health

Agroecological practices aim to enhance soil organic matter, prevent soil erosion, and reduce chemical inputs. This includes crop rotations, cover crops, composting, biofertilizer and bio-stimulants, minimal tillage, and integration of legumes for nitrogen fixation. These practices improve soil fertility, enhance water infiltration, and create a living ecosystem supporting plant and animal life.

3.1.4 Animal health and welfare

Healthy animals are integral to agroecological systems, providing ecosystem services such as nutrient cycling (manure), pest control, and enhancing livelihoods. Agroecology promotes integrating animals with vegetative systems, the wellbeing of animals, enhancing natural foraging and diverse diets for animals, managing rotational grazing systems, and using preventive and natural health measures.

3.1.5 Biodiversity

Promoting genetic, species, and ecosystem biodiversity is central to agroecology. This includes crop and animal diversification, intercropping, and agroforestry, by integrating agricultural production into wider landscapes and ecosystems, as well as maintaining natural habitats. Biodiversity enhances ecosystem services such as pest control, pollination, and soil health, making the system more resilient to climate change and other stresses. It should include indigenous plants and animal breeds as part of the traditional cultural values of the local people.

The FAO ten elements include the element of diversity, which includes diversification at a wider level across the whole agri-food system, not only at a farm level.

3.1.6 Synergies

To optimise overall productivity, agroecological systems create synergistic relationships between components, such as plants, animals, and microbes. Synergies enhance natural processes like nutrient cycling, water conservation, and biological pest management. For instance, integrating legumes into crop rotations can fix atmospheric nitrogen and improve soil fertility, and repurposing food waste as inputs creates links across the agri-food system. Synergy also refers to integration across these agroecology principles themselves. Agroecology is not one element or another in isolation, but practices in the system that integrate across the principles.

3.1.7 Land and natural resource governance

Agroecology advocates for policies and institutions that empower local communities, promote sustainable practices, and address power dynamics in the food system. Transparent and inclusive governance ensures that agricultural policies benefit smallholder farmers and the environment. Agroecology promotes participatory and integrated landscape management together with ecosystem-based approaches.

3.1.8 Co-creation and sharing of knowledge

Agroecology values traditional knowledge, farmer innovation, and scientific research equally. It promotes participatory approaches where farmers, researchers, and stakeholders collaborate to design and implement solutions. This agroecology principle respects local contexts and cultural practices by integrating them with other knowledge and information.

3.1.9 Social values and diets

Agroecology respects and incorporates local food cultures and traditions and diverse food systems that include farming, fishing, pastoralism and wild harvesting. It seeks to preserve heritage breeds and crops, native species, and traditional diets while promoting food sovereignty. This principle reinforces the connection between agriculture, culture, and identity. Agroecology promotes dietary diversity with nutrient-dense, balanced diets for food and nutrition security. Agroecology promotes community reciprocity and the sharing of produce with vulnerable community members.

3.1.10 Economic diversification

Agroecology promotes localised and territorial agri-food system supply chains to enhance farmers' access to markets and increase incomes. It also supports both on-farm and off-farm diversification, including value addition to improve household and local food security and sovereignty and reduce risks (i.e., fluctuating global markets).

3.1.11 Participation

Participation highlights the importance of including all stakeholders - farmers, consumers, communities, researchers, service providers, and policymakers in the design, implementation, and governance of agroecological systems. Active and informed participation by Africans, women and youth is essential in the South African context. Participation recognizes the importance of building strong, cooperative networks that strengthen social bonds and collective efforts.

3.1.12 Fairness

Fairness addresses social justice and equity within agroecological transitions by focusing on ensuring fair access to land, water, and other resources for smallholder farmers. It also promotes fair wages and decent working conditions while recognizing the labour contributions of all actors, particularly women and youth.

3.1.13 Connectivity

Agroecology fosters close relationships and builds trust through direct connections between producers and consumers, including the "*farm to fork*" concept that encourages more sustainable and environmentally friendly food systems. The entire food chain is connected by fewer links and shorter distribution networks while promoting fair economic returns to farmers, reduced food waste, and healthy, balanced diets. This supports local economies and a more direct connection between where food is grown and consumed.

3.2 GOALS OF THE NAFSA

The overarching goal of NAFSA is to provide a roadmap for the transition to agroecological food systems in South Africa. Its specific objectives are:

1. To enhance food security and food sovereignty at national, local, and household levels by promoting sustainable production aligned with agroecological principles.
2. To build climate resilience and mitigate climate-related risks through context-specific, adaptive agroecological practices.
3. To promote One Health, integrating animal, human, and environmental health through holistic land and resource management.
4. To support knowledge sharing and build local capacity through education, training, and participatory research.
5. To foster circular economies and promote economic viability for farmers and local communities.
6. To encourage the sustainable use of natural resources, protecting ecosystems while meeting the needs of present and future generations.

4 STRATEGIC PILLARS

Agroecology is an emerging paradigm that integrates ecological principles into workable agricultural and food systems, aiming to create sustainable agricultural food systems that are environmentally sound, economically viable, fair, and socially just. This holistic approach is built on several foundational pillars and objectives that guide its implementation and promote resilience in agricultural landscapes. Agroecology represents a transformative vision for agriculture and food systems that aligns with the pressing challenges of the 21st century, including climate change, food insecurity and malnutrition, biodiversity loss, and social inequality. Agroecology integrates principles of ecology into agricultural and food system practices, promoting biodiversity, enhancing soil health, and minimizing chemical inputs by phasing out toxic pesticides and synthetic fertilisers. It is characterized by practices such as integrated crop-livestock systems, connectivity with local communities, crop rotation, intercropping, agroforestry, and organic farming, which collectively enhance ecosystem services in local areas. It seeks to create resilient, productive, socially just, and environmentally sound food systems. Governance and institutional support for agroecology have become crucial. Effective governance frameworks and supportive institutions can foster agroecological practices, enabling communities to thrive while protecting the environment.

For the NAFSA to be effective and operational, five pillars serve as the foundational requirements for the framework. These five pillars range from the appropriate agroecological practices according to each agroecological zone to governance and institutional support. It is also vital that there is a research and innovation pillar and education, training, and capacity building at many levels, together with market access and a sustainable supply chain for agroecological inputs and products. Successful implementation is via all five pillars.

4.1 PROMOTE APPROPRIATE AGROECOLOGICAL PRACTICES FOR SA

Agroecological practices will be promoted and supported, including locally appropriate production and harvesting techniques according to each agroecological area. This will include an integration of agricultural production into wider landscapes and ecosystems, appropriate multi-actor and participatory systems of governance and decision-making, while adopting a food systems approach, including integration of agroecological principles across the supply system. This will take the form of financial, technical, and other appropriate support to agroecology practitioners, cooperatives, and enterprises, including on-farm field trials, as well as pilot and/or transdisciplinary projects for experimentation, learning, and scaling out of good practices. Living labs can be used as user-centred open innovation ecosystems that integrate research and innovation through co-creation in real-world environments. In living labs, multiple stakeholders will collaborate to co-create, test, and validate new agroecology products, services, and systems in a dynamic and user-centred approach.

By endorsing diverse and resilient agricultural practices, agroecology aims to improve food security and food sovereignty for local communities by increasing the availability and accessibility of nutritious food while supporting local economies. Agroecology seeks to minimize the environmental impact of agriculture by reducing toxic and synthetic chemical inputs and enhancing biodiversity. This objective aligns with global efforts to combat climate change and protect ecosystems. Agroecology emphasizes the importance of community involvement in agricultural-food system decision-making through empowering local farmers, fostering cooperative practices, and building strong, resilient communities that can adapt to changing environmental and economic conditions. Agroecological practices can reduce

production costs and increase profitability for farmers by diversifying crops and livestock while utilizing local resources, which can help farmers create more sustainable livelihoods that are less susceptible to market fluctuations.

4.1.1 Research and innovation in agroecology

Investment in agroecological research is essential for understanding local contexts and developing context-specific solutions for each of the identified agroecological zones. Collaborative participatory, on-farm, systems research involving farmers, scientists, students, extension practitioners, NGOs, and local communities can lead to innovative practices that are both effective and culturally appropriate. Innovation in farming practices is vital for the successful implementation of agroecology systems. This includes developing ecological pest management systems that utilize ecosystem balance, natural predators and biopesticides, thereby reducing and eliminating the use of toxic pesticides and synthetic fertilisers. Crop rotation and intercropping strategies can also maximize biodiversity and enhance soil health, necessitating innovative approaches to planning and managing crop sequences.

Agroforestry is an agroecological approach integrating crops and trees into the farming system requiring innovative systems to include productive trees (e.g., fodder, nitrogen fixing, nut, and fruit trees) into agricultural landscapes. This enhances biodiversity and improves soil quality and water retention, contributing to greater resilience against climate variability. Sustainability is a fundamental principle of agroecology, which calls for practices that minimize environmental degradation and promote the long-term productivity of the whole system.

Technological advancements play a crucial role in enhancing agroecological systems. Innovations in biotechnology, such as the development of drought-resistant crop varieties can help farmers adapt to climate change. This must be done giving cognisance to the fact that agroecology prohibits the use of GMOs. In addition, precision agricultural technologies, which utilize data analytics and sensor technologies, allow for more efficient resource use, reducing inputs such as water and fertilizers while optimizing yields. Moreover, agroecological systems can benefit from innovations in information technology. Mobile applications and online platforms can facilitate knowledge sharing among farmers, providing access to best practices for a specific agroecological area, market information, and climate forecasts. These tools can empower farmers to make informed decisions that align with agroecological principles.

Innovation is essential for advancing agroecology and addressing the multifaceted challenges of modern agriculture. A resilient and sustainable food system can be fostered by embracing appropriate technology for sustainable farming practices, supportive policies, community engagement, and innovative market strategies. Integrating these innovations will enhance agricultural productivity and contribute to environmental health, social equity, and food security and food sovereignty. Moving forward, innovative solutions must continue to be prioritized by investing in supporting agroecology and creating a more sustainable future for all.

Including indigenous knowledge and farmer-led innovations in research and innovation about agroecology is essential for building resilient and context-specific solutions to agricultural challenges. Farmers and local communities possess generations of their own practical experiential knowledge about soils, crops, livestock, climate variability, water use, and biodiversity, which often align closely with agroecological principles. By valuing and integrating these practices into formal research, sustainable farming systems can be co-

developed that are not only scientifically sound but also socially and culturally appropriate. Farmer-led innovations also ensure that research outcomes are practical, grounded in real-life experiences, and adaptable to diverse agroecological zones. This participatory approach fosters ownership, strengthens local capacities, and bridges the gap between science and practice, ultimately enhancing food security, environmental sustainability, and rural livelihoods.

4.2 EDUCATION, TRAINING, AND CAPACITY BUILDING

Community engagement is a critical component of agroecological innovation. Local knowledge and traditional practices should be integrated with external scientific knowledge for the co-creation of new knowledge to promote sustainable, agroecologically friendly agricultural-food systems. Innovations in community-based education programmes can empower farmers to share their experiences and learn from one another, fostering a culture of collaboration and mutual support. Participatory research approaches, where farmers are actively involved in designing and conducting the research and co-creation can lead to more relevant and applicable innovations. This ensures that solutions are tailored to the specific needs and contexts of local communities, enhancing the effectiveness of agroecological systems. Raising awareness about the benefits of agroecology is crucial for its wider adoption. Educational institutions can play a significant role by incorporating agroecology into curricula at universities, schools, agricultural colleges, and research organisations, thereby training the next generation of farmers and agricultural professionals (including extension, research, students, and agribusiness) about agroecological concepts and practice. Some key methodologies for capacity building, including peer-to-peer learning and knowledge exchanges, farmer field schools, revitalised and reskilled extension services, and decentralised agroecology living lab hubs, provide an opportunity for on-farm experimentation and demonstrations, and for learning and training.

Human capacity development refers to the process of equipping individuals and communities with the knowledge, skills, and resources necessary to achieve their goals. In the context of agroecology, this means fostering a deep understanding of ecological principles, sustainable farming and food processing practices, with community engagement, resulting in connectivity. It is a multifaceted approach that includes education, training, and the creation of supportive, informative networks. Human capacity development is a cornerstone for successful agroecology implementation. By enhancing the knowledge and skills of stakeholders, fostering collaboration, and creating supportive policies, an effective transition to sustainable agroecologically based agricultural and food practices is possible. Facing an uncertain future marked by environmental and social challenges, investing in human capacity for agroecology is not just beneficial - it is imperative for building resilient food systems that can sustain both people and the planet.

Agroecology, with its focus on sustainable agricultural practices along the food chain, ecological health, and social equity, requires a robust framework for human capacity development. This involves enhancing the knowledge, skills, and abilities of stakeholders - farmers, agricultural workers, students, researchers, and policymakers - so they can effectively implement and promote agroecological systems. As the global community faces pressing challenges like climate change, food insecurity, and environmental degradation, investing in human capacity development becomes essential for the successful transition to agroecological systems.

4.3 Inclusive Market Access and Sustainable Agri-Food Supply Systems

For agroecology to thrive, innovative market strategies are needed to connect producers with consumers via inclusive market access for agroecological producers, including appropriate infrastructure, quality assurance, food safety systems, and decentralisation of ownership amongst buyers to avoid power imbalances. Developing and supporting supply chains, including food processing opportunities that prioritize locally sourced and sustainably produced food crops, can help to support agroecological systems. Community-supported agriculture initiatives, local food markets, and direct-to-consumer sales models can empower farmers financially and encourage the adoption of sustainable practices. In addition, labelling and certification schemes that highlight and certify agroecological methods can assist consumers to make informed choices, thereby creating demand for sustainably produced food. This benefits farmers economically and raises awareness about the importance of agroecological sustainable systems.

A sustainable agri-food system needs an efficient system of goods and services for both those upstream and downstream of the farm. The upstream includes the production of raw materials and inputs, including the bio-input supply of organic fertilisers and pesticides as well as local seed banks, and appropriate financing. The downstream side should embrace the agroecology principle of connectivity between the producer and consumer, including processing, distribution, sale of agricultural products, as well as storage, logistics, transport, and value addition, which should be as local as possible and based on small enterprises wherever possible. Part of the downstream side should include market diversification (e.g., including public procurement, school feeding programmes), local, municipal, and regional fresh produce and farmer markets, informal traders, online and direct-to-consumer channels, as well as opportunities for contracts with retail outlets. When all these channels are explored and implemented, agroecology producers can experience fair exchange to increase the share of value accruing to the primary producer/farmer.

Agroecology provides opportunities to develop underutilized crops into agri-food systems and promote sustainable supply chains for nutrient-dense crops that can be used in agrifood processing. Product development could include methods to improve the retention of micronutrients and develop faster, more convenient cooking methods for indigenous underutilized crops to promote improved nutrition. Alternative snacks could be developed using agroecology farm produce using extrusion technologies to formulate nutrient-dense products, including nutrient-dense pasta, textured protein, and/or extruded snacks, that promote healthy snacking. There is potential to develop new food products from agroecology farm produce that are focused on combating malnutrition (nutrient deficiency, obesity, and diet-related non-communicable diseases) for small children and adults, that include balanced nutritional composition and sensorial preferences of local people. Agroecology includes recycling and can reduce food wastage by promoting effective storage, ecological pest and disease management on the farm and in storage, as well as composting and other innovative processes, such as developing bio-based packaging materials to be included along the supply chain to market the food products more sustainably.

Market access and fair trade for agroecological products are essential for the success and sustainability of agroecological farming. By addressing the barriers that hinder access and implementing strategies to enhance visibility and viability, a more equitable and sustainable food system can be created. Supporting agroecological farmers not only contributes to environmental health and biodiversity but also promotes social equity and economic resilience

in rural communities. As consumer awareness and demand for sustainable food continue to grow, fostering market access for agroecological products is not just an opportunity - it is a necessity for a sustainable future.

4.4 Governance and Institutional Support

Effective policy frameworks are essential for fostering the transition to viable agroecological systems for each agroecological area. Innovations in policy must prioritize support for smallholder farmers, equitable access to resources, development of an appropriate input sector, and the promotion of sustainable agroecological practices. This includes providing financial incentives for adopting the agroecological approach, such as subsidies for organic inputs or grants for research and development. Institutions also need to adapt to promote agroecology effectively. This involves creating collaborative networks that connect farmers, researchers, and policymakers to facilitate knowledge exchange and joint problem-solving. Such innovations can help to build a supportive ecosystem for agroecology, ensuring that all stakeholders within the supply chain are engaged and invest in sustainable practices.

Governance plays a pivotal role in facilitating or hindering the adoption of agroecological practices. Effective governance structures should involve multiple stakeholders, including farmers, local communities, governments, and civil society organizations, supply chain actors and consumers. This multi-stakeholder approach ensures that diverse perspectives are considered, leading to policies that are more equitable and effective. National and provincial policies, both in agriculture and environment, must prioritize agroecological principles. This includes providing incentives for transitioning to sustainable practices, ensuring land tenure security, as well as supporting research and development in agroecology. Policies should also address the socio-economic factors that influence farmers' decisions to adopt agroecological methods.

The government can formulate regulations that promote agroecological practices, such as restrictions on harmful pesticides and fertilizers. Certification schemes for organic and agroecological products can enhance market access and encourage farmers to transition to more sustainable practices. Access to funding in support of the transition is essential for farmers transitioning from traditional or conventional methods to agroecological methods. Government and institutions can provide grants, low-interest loans, and financial incentives for adopting sustainable practices. In addition, supporting cooperatives can enhance farmers' bargaining power and access to resources.

Institutional support is equally critical in promoting agroecology. Institutions, including agricultural extension services, cooperatives, research organizations, and educational institutions, play a vital role in knowledge dissemination and capacity building. Agricultural extension services should be reoriented to promote agroecological practices. This involves training extension workers in agroecology and providing farmers with practical knowledge and tools. Participatory approaches that involve farmers in the development of solutions can enhance the relevance and effectiveness of extension services while enabling farmer-to-farmer communication.

Governance and institutional support at all levels (national, provincial, and local) are fundamental to the successful implementation of agroecology. By establishing supportive policies, enhancing institutional frameworks, and fostering participatory multi-stakeholder collaboration, governments and institutions can facilitate the transition to sustainable

agricultural practices. As agroecology gains recognition as a viable alternative to conventional agriculture, it is essential for governance systems to adapt and evolve, ensuring that food systems are resilient, equitable, and environmentally sustainable. The future of agriculture hinges on our ability to embrace and support agroecological approaches, ultimately benefiting both people and the planet.

Effective coordination between local, provincial, and national authorities is critical to ensure strong governance and institutional support for agroecology. Local authorities play a key role in engaging directly with farmers and communities, while provincial structures provide oversight, technical support, and resource allocation across regions. At the same time, national authorities are responsible for creating enabling policies, mobilizing funding, and aligning agroecology with broader national development and climate strategies. Without clear coordination and collaboration across these levels, efforts risk being fragmented, underfunded, or poorly implemented. A harmonized approach ensures consistency in policies, strengthens institutional capacity, and allows for scaling up of successful agroecological practices, ultimately creating a supportive environment where farmers and communities can thrive.

5 STAKEHOLDER ENGAGEMENT VIA PARTICIPATORY APPROACH

5.1 KEY STAKEHOLDERS

Stakeholder theory asserts that, to be effective and sustainable, organisations should consider and actively involve the interests of groups affected by the organization concerned. The theory has been commonly applied in many organisations, and the results thereof in promoting a long-term successful business have been proven in academic literature. It is, therefore, crucial to identify key stakeholders who will assist in making sure that whatever programme or plan one needs or wants to implement becomes a success right from the beginning.

5.1.1 Identification of stakeholders

Within every community, village, suburb, farming area, and business, etc., people are playing various important roles that cannot be left out of the implementation of anything within their jurisdiction, e.g., traditional leaders, school leaders, individuals, farmers (homestead, smallholder or commercial), communities, the private sector, NGOs, research institutions, and civil society support organisations etc. The purpose of stakeholder identification and analysis is to facilitate the understanding of how to manage stakeholders in increasingly turbulent and unpredictable environments (Wood et al., 2021). Moreover, understanding which stakeholders to engage and their perspectives and interests is critical for work related to sustainability and to ensure the legitimacy and quality of related decisions (Haggart & Keller, 2021).

Engagement of stakeholders is also critical to understand the complexity in both accountability and decision-making processes (Nguyen Long et al., 2019), as it is highly relevant to the adoption and implementation of the NAFSA. Moreover, it is an integral part that ensures its success if approached inclusively, acting as a tool to encourage everyone to work together. It harnesses stakeholder participation to enable the adoption of the framework, and it enables the implementation of potential solutions.

CGIAR (2022) mentions that stakeholder engagement is important to let national and local partners have significant input; hence, it has identified six common engagement principles (**Figure 2**).

Relevant multi-actor stakeholders across both the agriculture and food sectors should be identified for engagement on the agroecological transition. They will include farmers, smallholders, gardeners, community beneficiaries and leaders, food retailers and processors, universities and agricultural colleges, relevant civil society support organisations and networks, government departments at local and national levels, South African Agricultural Union (AgriSA) (https://www.agrisa.co.za), Agricultural Business Chamber (AgBiz) (http://agbiz.co.za), and the ARC (http://www.arc.agric.za). Information has been sourced from various sources, including provincial departments of agriculture, NGOs, civil society, commodity organizations, and other databases.

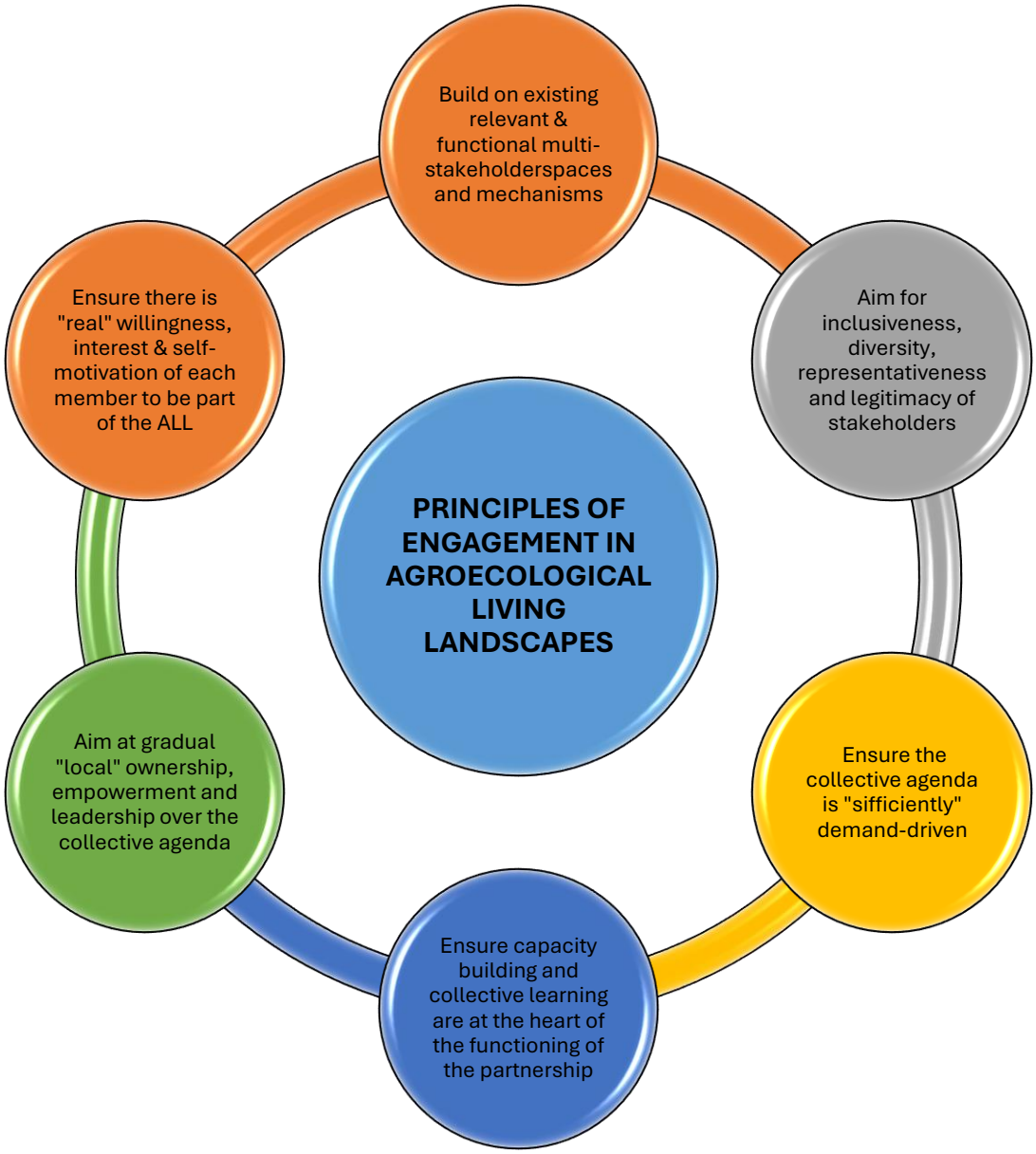

Figure 2 The six engagement principles to follow in establishing Agroecological Living Landscapes (CGIAR, 2022).

5.2 Mechanisms for Engagement

Engagement signifies the types of activities an organization might execute in respect of stakeholders: consult, listen, understand, communicate, influence, and negotiate with the broader objectives of satisfying their needs, gaining approval and support, or at least minimizing their opposition or obstruction (MacNicol et al., 2014). This indicates that the involvement of everyone in planning, implementation, and monitoring is crucial for its success. South Africa is known as a country where most citizens were classified based on their racial and ethnic groups in the past. Various traditional and political leaders need to be consulted before anything can be implemented within their constituencies. This, therefore, leads to various mechanisms being in place to achieve the main objective (not only limited to national Indabas), but including provincial forums, information meetings with traditional and indigenous leaders, commodity organisations, organised agriculture, civil society groups, etc.

According to CCARDESA (2022), engagement can be done through established communication channels, communities of practice, etc., use of media, agricultural shows, demonstrations, farmer field schools, public meetings, emails and letters, print and electronic media, distribution of printed project documents, interviews, workshops, focus group meetings, surveys, and independent evaluations. It further states that to ensure effective engagement, the following principles are needed:

(i) openness and life-cycle approach,
(ii) informed participation and feedback, and
(iii) inclusiveness and sensitivity to stakeholders' needs. Special attention should be given to vulnerable groups, in particular women, youth, the elderly, indigenous peoples, and diverse ethnic groups.

5.3 Gender and Youth Inclusion

Various researchers, individuals, and organizations have emphasised the importance of inclusion of all people regardless of gender, race, or age, when concerned with agricultural production. Huyer et al. (2024) mentioned that effective food system transformation requires gender responsive interventions, social and youth inclusion, intersectionality, and cognizance of how global social and environmental changes affect the transformation process. Moreover, in the context of food system transformation, gender transformation requires scalable, enabling mechanisms. Linkages should be made with the other government department activities that deal with such matters.

5.3.1 Special emphasis on engaging women and youth in agroecology

Gender has been one of the critical topics that often does not receive enough emphasis within the agri-food sector. Despite the tremendous contribution of women and the essential role they play in food systems, they are not sufficiently empowered to flourish. Therefore, agroecology has the potential to address some of these inequalities by empowering women and ensuring that their hard work and contributions are recognized. This can take various forms, such as land redistribution and ownership (registered in their own names), financial gains, active and informed participation in decision-making, and improved health.

Two gender-responsive approaches, can combine to address gender issues from different angles:

(i) Adapting to using climate-resilient practices in a socio-economic context, addressing women's constraints, and engaging them in the selection of locally adapted agroecological practices, and developing tailored incentives;
(ii) more broadly, placing the needs of women and men who produce, distribute, and consume food are at the heart of the food systems (FAO, 2023b).

Some of the actions to empower rural women during development interventions include (Sisto & Furst, 2019):

(i) labour-saving technologies
(ii) access to production inputs
(iii) participating in decision-making
(iv) access to land and water
(v) access to markets

(vi) provision of equal rural services and infrastructure, representation in local institutions, and governance mechanisms
(vii) inclusion in decision-making within the households and communities.

Through these actions, women will be provided with an enabling environment that allows them to define their own goals, therefore assuming agency (Anik & Rahman, 2020). As a country, these aspects need to be addressed and improved, as the data about the current state of women's participation is incomplete. The recent census of agricultural statistics from Statistics South Africa (StatsSA, 2024) makes this point using a few indicators (Sihlobo, 2024).

The youth are a key asset, and their involvement is a prerequisite for improving the productivity and growth of all sectors of the economy. In addition, many young people face hurdles in trying to earn a livelihood. A pertinent point is that the future of the world is in the hands of the youth. Currently, agriculture is not considered as a remunerative or prestigious profession. Until youth find meaningful economic opportunities and attractive environments in rural areas, they will continue to migrate to urban areas. Youth should not only be included in the agroecology transition, but also be capacitated to play a leading role. The inclusion of youth in innovations in agriculture has dual benefits. Firstly, their curiosity and capacity to innovate could transform family farms, considering that youth are often aware of new technologies and have the relevant education. Secondly, innovations could create business opportunities for youth in many places throughout the agri-food system and encourage them to remain in rural areas.

5.3.2 Targeted programmes to support youth in agroecology

By 2050, the youth population in sub-Saharan Africa (SSA) is expected to exceed 60%. Therefore, countries seek policies to enhance youth engagement in agriculture to contain the ensuing youth bulge, reduce unemployment and 'flight' from rural areas, as well as increase agricultural productivity. However, orthodox assumptions and locally inappropriate policies keep youth engagement low (Zulu et al., 2021). Unquestionably, there is a need for educational, training, and internship programmes that equip the youth with the necessary technical and entrepreneurial skills, since many young people lack the skills and knowledge required for modern sustainable farming with agroecological principles. By providing young people with experience, knowledge, and skills, they can use agroecological practices and strategies to transform food production, processing, and marketing. This shows that young people can create enterprises throughout the agri-food system to give a stable, secure, and productive future in rural areas.

Youth engagement and leadership are intrinsically linked to numerous aspects of achieving food security and food sovereignty, and good nutrition for all. Among these aspects that are particularly relevant are interlinkages with gender equality and women's empowerment, the rural-urban continuum, innovative practices, and technologies, as well as the use of new technology and new uses of data and knowledge-sharing platforms (HLPE, 2021). Young people today are more environmentally conscious than previous generations, and engaging them in sustainable agroecological agriculture nurtures a sense of environmental stewardship, which is critical for the long-term health of our ecosystems. For agroecology to fulfil its potential to address global challenges more thoroughly, youth engagement is necessary to influence food system innovations toward agroecology and to foster the wider uptake of agroecological practices and consumption (Ojwang et al., 2024). To achieve many of these aspects, funding must be a tool to empower youth to buy whatever resources are needed to establish and/or make an existing business successful.

6 IMPLEMENTATION ROADMAP AND PHASES

To implement the NAFSA across South Africa, a detailed implementation plan should be prepared by a multi-stakeholder coordination committee or group, including members from all the relevant role-players along the agri-food system. This is an outline of the pertinent phases running concurrently and aspects that need to be included, with the addition of an action plan to be completed prior to the Implementation Phases starting.

6.1 PHASE #1: AWARENESS BUILDING, PILOTING, AND ESTABLISHMENT OF GOVERNANCE STRUCTURES

a) Create stakeholder awareness (the public, NGOs, private sector advisors, and provincial government extension services), including establishing district-based "*Agroecological Forums*", as a process for participation and involvement of the broader community, beginning with those already active in agroecological.
b) Conduct participatory pilot studies in selected agroecological zones to illustrate successful transitions, including research into the most sustainable practical interventions and integrated farming systems (starting where agroecology farmers already exist).
c) Develop inclusive multi-actor governance mechanisms (from national through provincial and municipal to community levels) and a Monitoring and Evaluation (M&E) system.
d) Develop toolkits, manuals, and training resources for all levels of the agricultural-food system to explain the transitions and how to test interventions (this will need to be an ongoing activity as other agroecological zones are brought in).

6.2 PHASE #2: SKILLS DEVELOPMENT AND DISSEMINATION

a) Skills development of farmers, government employees, NGOs, using participatory and knowledge co-creation methods such as farmer field schools and learning exchanges.
b) Implementation of integrated and participatory pilot projects in selected agroecological zones. These are to be phased in, starting with at least five municipalities per province.
c) Co-organise a "*National Agroecology Indaba*" with other stakeholders as a forum for sharing and learning about successful agroecological practices and concepts from participants' success stories, as well as the challenges faced. Later, these "*Agroecology Indabas*" can be organised in similar agroecological zones in each province, as well as occurring together with the Agricultural Shows and seed and food festivals in each region.
d) Institutionalisation of Agroecology in South Africa:
   – as a directorate in the DoA at both national and provincial levels;
   – as an accredited agricultural-food systems training programme at universities and colleges by the South African Qualifications Authority (SAQA); and
   – as a standard learning component in the basic education phase of all schools, along with a practical element (school food gardens).

6.3 PHASE #3: UPSCALE TO OTHER MUNICIPALITIES AND AGROECOLOGICAL AREAS

a) Scale out to the whole country for every agroecological zone.
b) Conduct special training visits to and from existing operational agroecology farms to others, for "farmer to farmer" exchanges and experiential learning.
c) Upscale from the pilot studies by at least 11 implementation projects per year.
d) Expose first-year university and college students to agroecology agri-food systems to build awareness.

e) Expose and integrate graduate students into running agroecology participatory research projects across the country.

6.4 Phase #4: Monitoring, Evaluation and Revision of Programme

a) Develop a MEL framework and plan.
b) Quarterly monitoring of progress.
c) Review progress, impact, and adjust agroecology initiatives.
d) Monitor progress and outcomes of pilot projects.
e) Continue the institutionalisation of agroecology in South Africa.

6.5 NAFSA Implementation Action Plan

Appendix 2 and **Appendix 3** contains a detailed implementation action plan from the time that this NAFSA is accepted until Phase #1 begins. It gives details of the necessary steps and processes to be implemented and fulfilled prior to Phase #1 beginning.

6.6 Timeline of Key Milestones

The NAFSA will be implemented over a period of five years.

Year 1

i. Establish a multi-actor coordinating committee to facilitate participatory and inclusive planning, implementation, M&E, and adjustment.
ii. Develop an M&E and learning plan and a communications plan for the five-year phase, including a review of existing tools and indicators for agroecological assessment, and develop a process for participatory and consultative development of appropriate indicators, and begin implementation.
iii. Conduct a comprehensive scoping, review, and assessment of existing agroecology systems (including mapping of expertise, projects, etc) and available training materials, courses, and curricula on agroecology. Identify gaps and develop a plan for filling gaps and rolling out a comprehensive training programme for various levels.
iv. Develop training materials and courses on agroecology as needed in conjunction with universities, agricultural colleges, schools, Agricultural Sector Education Training Authority (AgriSETA), the Agroecology Knowledge Network, NGOs, and others as relevant.
v. Engage with relevant Directorates within Agriculture, Forestry, the Environment, Water Affairs, Education, Social Development, and NGOs to develop a process for extension training/reskilling on agroecology, and identify specific localities to start (e.g., linked to potential sites for pilots).
vi. Consider other key relevant processes for engagement (e.g., food systems transformation pathways, NFNSP, climate adaptation, rural development, land redistribution) and engage to integrate plans and processes wherever possible.
vii. Plan and co-host an annual National Agroecology Indaba in collaboration with other stakeholders.
viii. Identifying possible sites for piloting of agroecology for smallholders across a range of agroecology zones.

Year 2

i. Continue with process facilitation through the coordinating committee.
ii. Continue with implementation of M&E, learning and communications plans. Produce periodic monitoring reports.
iii. Implement integrated production (crops, animals, agroforestry, fish, etc), and diverse techniques at demonstration sites/training hubs.
iv. Train extension officers on principles of agroecology, starting with those in the selected pilot sites.
v. Support cross-learning exchanges between pilot sites and with other initiatives of interest (including national, regional/continental, and global).
vi. Identify promising initiatives on the production of bio-inputs and farmer seeds, and support their consolidation and expansion, linking to government farm input subsidy/farmer support programmes.
vii. Engage with existing alternative marketing channels, support the development of additional markets for agroecological produce (through public procurement, provision of municipal market infrastructure, etc.).
viii. Plan and co-host an annual National Agroecology Indaba in collaboration with other stakeholders.
ix. Document all processes for M&E, learning, and communications.

Year 3

i. Continuation of year 2 activities.
ii. Draw lessons from pilots, identify additional sites, and expand using the same or revised methodology based on lessons learned.

Year 4

i. As with year 3.

Year 5

i. As with year 4.
ii. Coordinating committee to assess progress and develop a new strategic plan to scale out from the pilot districts and refresh the coordinating committee.

7 RESOURCES AND INCENTIVES FOR IMPLEMENTATION

7.1 BUDGET ALLOCATION AND FUNDING SOURCES

Several statutory instruments in South Africa, such as PDALA and NEMPA, empower the minister to mobilise resources, including funding, for the support of Agroecology. Some of the existing programmes within the DoA, such as Land Care, do carry budgets that were dedicated to CA. Some of these funds can be used for the establishment of new Agroecology projects. Existing farmer support programmes such as the CASP and Ilima/Letsema can be adapted to allocate a portion of resources specifically to support agroecology farmers. Likewise, the farm input subsidy programme can be adapted to accommodate agroecological inputs, especially those produced by farmer- and community-based small enterprises. Resources allocated to climate-smart agriculture activities can be shared with agroecology, as the environmental underpinnings and intent are similar. On an annual basis, there are open calls for the establishment of Agroecology projects, including those from the World Wildlife Fund (WWF), the Green Climate Fund (https://www.greenclimate.fund/), and the Agroecology Fund (https://agroecologyfund.org/). The ARC has a mandate to submit applications to various funders, including international organizations, to secure funds for Agroecology projects. Multi-actor fundraising partnerships are to be encouraged.

7.2 INCENTIVES FOR SMALLHOLDERS AND FAMILY FARMS

Incentives for smallholder farmers can be delineated into several components, namely grants and subsidies as part of farmer support programmes, tax and marketing incentives, payment for ecosystem services, carbon emission rebates, low-interest rates on loans, and provision for quality Open-Pollinated Variety (OPV) seeds. Access to shelf space in retail supermarkets for products produced under agroecology conditions can serve as a special incentive. The National Agricultural Marketing Council of South Africa (NAMC) has an important role to play in the marketing and promotion of agroecologically produced produce, together with opening opportunities for these farmers. The development of a payment or tax rebate system for ecosystem services, including carbon sequestration, water conservation, pollination, pest control, soil health improvement, biodiversity enhancement, nutrient cycling, and climate regulation, can benefit agroecology farmers. Farmer-based and small enterprises could multiply and supply quality seeds, sourced from the ARC gene banks, seed, seed repositories and through farmer-led seed banking initiatives.

7.3 FUNDING FOR RESEARCH, DEVELOPMENT, AND PILOT PROJECTS

Funding for research is to be sourced from open calls, competitive grants, and special-purpose funding instruments. Across the world, there are concerns regarding food safety and quality, and consumers are becoming conscious about health issues. International organisations such as the Consultative Group on International Agricultural Research (CGIAR) Research Centres, the African Union, and the World Bank offer grants for initiatives around agroecology. The European Union and individual countries do have donor programmes to promote and advance agroecology in Africa and elsewhere in the world. Some of these may be restricted to particular specific activities such as research or technology transfer. National sources of funding include the National Research Foundation (NRF), Department of Science, Technology, and Innovation, the Water Research Commission (WRC), Agricultural Commodity Trusts, the NAMC, and others can be approached for funding various aspects of this transition. A similar system to the organic products Participatory Guarantee Systems (PGS) could be used in a locally focused,

trust-based quality assurance system to link producers and consumers through social networks and knowledge exchange. As there are many aspects to an agroecology system, it is important to incorporate a systems approach into the integrated and participatory pilot projects, including addressing aspects such as ecosystem services, economics, and marketing.

Agroecology Fund is a multi-donor fund, constituted by 19 donors from the US, Europe and Asia, set up with an aim to support Agroecological practices, including research and policies (Agroecology Fund, 2023). Founded in 2011, the level of uptake for its grant is impressive. From 2012 to 2024, through the global grant programme and regional funds, a total of USD 41 million through 756 grants have been issued to 102 countries (Agroecology Fund, 2024).

According to the report by Agroecology Fund (2023), the Regional Agroecology Fund in Eastern Africa is a financing and learning tool that aligns with Agroecology principles to do with co-creation of knowledge, grass-roots farmer-participatory processes that embrace IKS, and where the research agenda addresses the needs of women, youth, and local indigenous people. The fund is issued through grant funding, which encourages regional integration for shared learning and peer-to-peer cross-pollination of ideas. The fund contributes to knowledge generation and exchanges, to deepen grassroots evidence for agroecology, and to adjust and improve strategies for scaling up agroecology.

Although South Africa is eligible to receive this funding, the appropriate recognised organisations must engage with the funder from the grassroots, such as Civil Society and NGOs, who work with farmers on the ground. It must be done through grant-matching strategies, and these organisations need to demonstrate participatory methods involving women, youth, and indigenous people.

7.4 Access to Credit and Financial Assistance Programmes

The development banks responsible for issuing credit to farmers in South Africa include, but are not limited to, the Land and Development Bank of South Africa and the Industrial Development Corporation (IDC). To date, these financial institutions are not involved in matters relating to Agroecology. These organisations need to develop tailor-made financial packages for the transition to agroecology in South Africa. As a strategy for building momentum, development banks and other funding institutions need to make an integral contribution to the agroecology movement in South Africa. This can be achieved by, among others, ensuring that some of the representatives from these institutions attend the relevant Parliamentary Committee meetings and vice versa by including representatives in a multi-actor governance structure. As an agroecological transition is a complex, multi-level process that involves environmental, economic, and social aspects, the funding model must include the development of an effective knowledge sharing strategy at a local level for each agroecosystem to achieve a successful transition.

7.4.1 Learning from Sub-Saharan Africa, Working Models on Credit and Financial Assistance

There are good case studies in various SSA countries about access to credit and financial assistance for Agroecology-related projects. The models for issuing financial assistance are multifaceted and seldom disguised in different formations. As an example, some of the financial programmes have as a target Agricultural SMEs, which are addressing the triple-bottom-line dimensions, encompassing environmental, social, and economic disciplines. In the

area of social dimension, focus is levelled at agricultural enterprises involving women and youth, whereas in the environment, emphasis is on climate-smart agricultural enterprises. There are however funding programmes that began in the 20s, especially in East Africa, mainly in Kenya, Rwanda, Tanzania and Uganda, that are solely dedicated to Agroecology (Aceli-Africa, 2020).

Aceli-Africa, a NPO registered in the United States, with its affiliate registered in Kenya, serves as an international financial intermediary, lending out wholesale finance to grass-roots organizations that offer credit to farmers. Aceli-Africa receives donor funding from international organizations, such as United States Agency for International Development (USAID) (https://www.usaid.gov/), IKEA Foundation (https://ikeafoundation.org/ Netherlands-based non-profit organization) and Swiss Agency for Development and Cooperation (SDC) https://www.deza.eda.admin.ch/en). Aceli-Africa uses a developmental approach when it comes to issuing credit to farmers practising Climate-Smart Agriculture (CSA) via country-based organisations, where strategies for overcoming the risk of defaulting loans are incorporated into the finance model.

The strategies include, but are not limited to, guarantee schemes against potential project failure, blended finance for high-value markets dealing with organic agricultural products, and innovation funding that profiles farmers based on risk profile, with high-risk farmers given special training. Also incorporated into the finance model of Aceli-Africa is the system for data collection among agricultural intermediaries in sub-Saharan Africa, as a monitoring and evaluation strategy that provides for programme redesign and re-engineering (Aceli-Africa, 2020).

In sub-Saharan Africa, at least two schemes are dedicated to agroecology funding, including the Trust Africa (https://trustafrica.org/) and Agroecology Fund (https://agroecologyfund.org/) which were launched in 2020 in SSA (Aceli-Africa, 2022). The aims of these funds are to offer:

- Technical and financial support to grassroots organizations lending money to agroecology farmers, and where there are opportunities for scaling up and scaling out,
- Financial support to grassroots organizations that offer guarantees to organizations that issue credit for agroecology projects, and
- Capacity building towards regional learnings, knowledge generation, and exchange to deepen grassroots evidence for agroecology, as well as to adjust and improve strategies for scaling up agroecology.
- Grants for research on participatory action research agroecology projects.

Trust Africa and Agroecology Fund both have goodwill from philanthropists, who embrace the long-term positive impacts, in the form of healthy food, sustained environments, job creation and food security to be derived from investments in Agroecology using participatory methodology (Aceli-Africa, 2022). Lessons for South Africa are to promote more projects with international and national NGOs and consortia that are involved in Agroecology.

7.5 Institutional Arrangements

To implement a seamless and effective NAFSA, there are many connections between key institutions making contributions by providing services at different levels across the agroecology agri-food system. The DoA, as the custodian of NAFSA plays a critical role in the policy and regulations formulation, implementation, and coordination. A significant number of pieces of legislation relevant to agroecology addressing several aspects of environmental

degradation are administered by the DoA, with DFFE also responsible for others. Several of these legislations and policies are being implemented via the formulation of programmes (e.g., Land Care, CAPS, Letsema, and Fetsa Tlala), which, through proper orientation, could serve as a resource base for the upscaling of Agroecology within the agri-food value-chains. Due to the infancy nature of agroecology in South Africa, even when resources are available, a knowledge deficit exists in terms of the nature of resources and skills required for Agroecology, particularly for the integration of agroecology within the whole agri-food system. Through participatory research, the ARC, in liaison with its partner stakeholders, such as the NAMC, Department of Trade, Industry and Competition (DTIC), Department of Science, Technology and Innovation (DSTI), DFFE, various farmer and civil society associations, can promote the out-scaling and implementation of agroecological agri-food systems across South Africa. The roles and responsibilities for the implementation of the out-scaling of agroecology can be spread over various entities, departments, and stakeholders to achieve an efficient system. These need to be coordinated and arranged by the multi-stakeholder agroecology coordinating committee group.

7.6 Extension Services and Skills, and Competencies

The issue of extension services and skill competencies is crucial, given the legacy of poor extension services in South Africa. Several universities have started working on a curriculum for agroecology to institutionalise training on agroecology and related aspects. The ARC has committed to providing inputs to these important initiatives. Due to the long-established relationship between the ARC and the DoA's Extension Services in South Africa, the ARC can expand its existing training on various aspects of agricultural production to include agroecology to open a new window of opportunity. This can achieve a successful working relationship with the universities and AgriSETA. Both AgriSETA and SAQA should be included to ensure the accreditation of focused agroecology training courses at different levels.

7.7 Multi-Level Stakeholder Mechanism to Drive Mainstreaming

This approach focuses on the mobilisation and empowerment of all key stakeholders (at multiple levels), especially farmers, by recognising, using, and strengthening farmers' ability to be innovative and engage in a transition. The model holds the view that technological and social innovations are shaped by a continuous process of communication, interaction, and exchange of knowledge (social learning) among farming communities and other actors in rural service provision. This methodology is characterised by the following key processes: stakeholder identification and mobilisation; diagnosis of agroecology farming systems, awareness, season-long training, farmer-led experimentation, and social learning (via innovation platforms). The following principles underpin these processes: autopoietic innovation ecosystems (i.e., self-perpetuating learning systems), communicative action, discovery and experiential learning, critical reflection, adaptation, facilitation, dialogue, and participation. This innovation process requires constructivist methodologies such as Farmer Field Schools (FFS) and action research to empower farmers to adapt and adopt agroecology practices in their own realities.

A Multi-level Stakeholder Mechanism (MLSM) consists of both a bottom-up and a top-down approach, which integrates on different levels or platforms (**Figure 3**). It describes the processes that are required to transform the MLSF from a static framework into an active and living system that can mobilise the people populating the system and ultimately change the situation they are living in. It would therefore be essential to create these innovation platforms

for communication and decision-making at different levels where diverse stakeholders are able to meet, share experiences, learn together, and contribute to decisions. Ultimate success for the institutionalization of agroecology into government programmes such as LandCare lies in developing the collective commitment and capacity to turn ideas and plans into action. This can be achieved through facilitating innovation platforms and social learning, bringing different groups into constructive engagements, dialogue, and decision-making to bring active change in the agri-food sector.

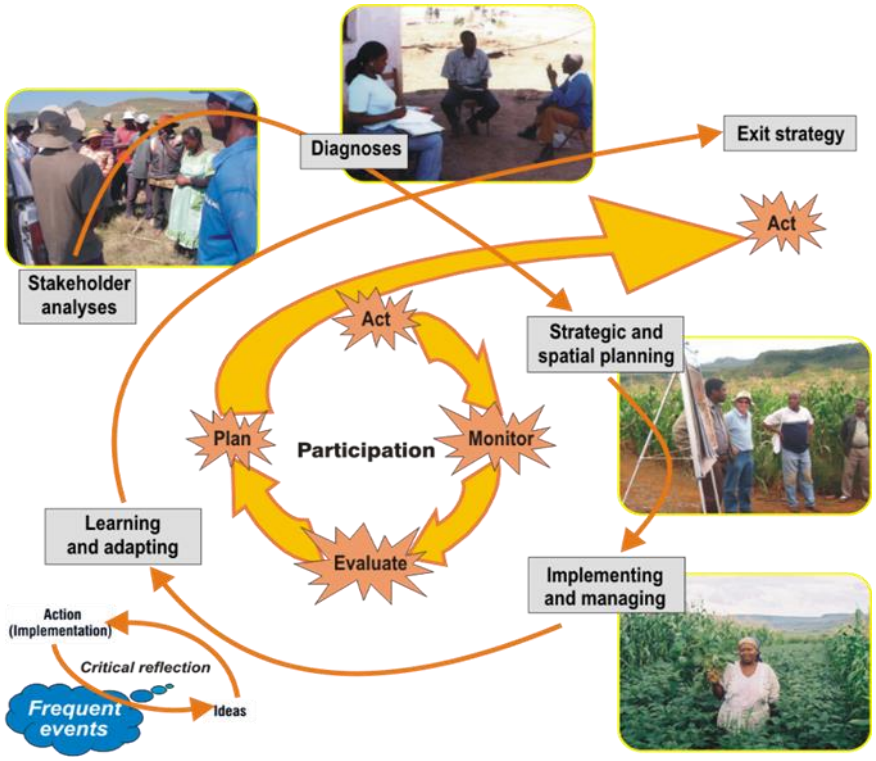

Figure 3 The farmer-centered innovation systems model for sustainable land management (DAFF & FAO, 2014).

8 MONITORING, EVALUATION, AND LEARNING PLAN

8.1 INTRODUCTION

A robust MEL plan is essential to achieve agroecology's transformative goals for the duration of such a transition. Such a plan supports decision-making, measures progress, enhances accountability, and facilitates adaptive management by continuously enabling learning from successes and challenges (Gliessman, 2018). The main goal of M&E is to improve current and future management, performance, and progress on inputs, activities, outputs, outcomes, and impacts. M&E's importance lies in realizing whether the results envisioned are being achieved; it does so by measuring specific parameters. Learning in this context is to be intentionally informed by the results of M&E (what works and what does not) for adaptive decision-making (FAO, 2023a). Key components of an MEL plan are a set of indicators and data collection at a defined periodicity, an evaluation of the changes from the baseline according to the results versus the objectives, and the resultant learning from what worked and what did not, together with identifying the gaps. A MEL plan should follow certain key principles, including using participatory and inclusive approaches, being holistic and multi-dimensional, and having a degree of adaptability and flexibility according to the specific context. This MEL plan will be a long-term activity as it continues to monitor the transition from the current agricultural situation as it is transformed into a more sustainable and viable agroecological food system benefiting all people in South Africa over many years.

8.2 PURPOSE AND FUNCTION OF THE MEL PLAN

The primary purpose of the MEL plan is to support the effective implementation of the NAFSA by:

- Tracking the progress of agroecological interventions across environmental, social, economic, and institutional dimensions.
- Enhancing accountability and transparency among stakeholders, including government, civil society, farmers, and researchers.
- Informing evidence-based decision-making and policy development.
- Enabling adaptive management and responsiveness to emerging challenges and opportunities.
- Creating structured opportunities for learning, sharing, and reflection across all levels of engagement - from farm to national policy.

In this way, the MEL plan supports a dynamic feedback system that promotes learning and improvement rather than merely compliance or reporting.

8.3 CO-CREATION AND PARTICIPATORY DESIGN

Central to the MEL approach is the principle of co-creation. The design, implementation, and ongoing refinement of the MEL framework will be carried out in collaboration with a broad range of agroecology stakeholders. This includes small-scale farmers, farmer associations, indigenous knowledge holders, researchers, government representatives, and civil society organizations.

The multi-stakeholder agroecology coordinating committee group will play a coordinating role in convening these actors to ensure the MEL plan is closely aligned with the national agroecology planning process. In doing so, it will reflect shared priorities, diverse local realities,

and multiple ways of knowing. This participatory process ensures that MEL serves not only as a technical instrument but also as a space for empowerment, ownership, and inclusive governance.

Workshops, focus groups, and stakeholder consultations will be used to identify context-specific indicators, define success, and co-develop methodologies for data collection and evaluation. In this way, the MEL plan will be rooted in the lived experience of agroecology practitioners and the communities they serve.

8.4 Theory of Change Framework

A foundational element of the MEL plan is a co-developed Theory of Change (ToC). The ToC serves as a conceptual roadmap that outlines how specific agroecological activities and strategies are expected to lead to intended outputs, outcomes, and long-term impacts.

The ToC will include the following components:

- **Inputs**: Resources such as knowledge, training, finance, technology, institutional support, and infrastructure needed to initiate agroecological practices.
- **Activities**: Agroecological interventions including crop diversification, soil and water conservation, farmer-led research, local seed systems, market development, and capacity-building efforts.
- **Outputs**: Immediate and tangible results of these activities, such as increased adoption of agroecological practices, improved access to markets, or strengthened farmer networks.
- **Outcomes**: Medium-term effects such as enhanced soil fertility, greater food sovereignty, improved nutrition, and more equitable access to land and resources.
- **Impacts**: Long-term goals include resilient food systems, restored ecosystems, climate change mitigation and adaptation, improved livelihoods, and intergenerational knowledge sharing.

Critically, the ToC will include feedback loops that reflect the principle of iterative learning. These loops ensure that monitoring and evaluation findings are not simply archived but are used actively to refine practices, influence planning, and adapt strategies. The ToC will also make explicit the assumptions that underpin expected change pathways, such as the presence of enabling policy environments, the availability of financial support, and the willingness of stakeholders to collaborate.

A visual version of the ToC, such as a logic model or flow diagram, will support shared understanding and communication across diverse stakeholder groups.

8.5 Indicators and Dimensions of Change

A core element of the MEL plan is the development and application of a suite of indicators (**Table 2**). These indicators will be developed through participatory processes and adapted to the diverse contexts in which agroecology is practiced. The first step will be collation, synthesis, and assessment of existing indicators that have been developed to measure the impact of agroecology, including the Tool for Agroecology Performance Evaluation (TAPE) (FAO, 2019) and the Agroecology Assessment Framework (Agroecology Coalition, 2023). Indicators will be categorized into the following dimensions:

Environmental Indicators
These assess the ecological outcomes of agroecological practices and include metrics such as soil health (organic matter and diversity of beneficial organisms), biodiversity (species richness, crop and livestock diversity), water conservation and efficient use, healthy ecosystems, carbon sequestration, and resilience to climate variability.

Social Indicators
Social indicators reflect the impacts on communities, well-being, equity, and participation. These may include levels of food and nutrition security and sovereignty, gender and youth participation in decision-making, access to knowledge and resources, integration of indigenous knowledge, and community health and safety.

Economic Indicators
Economic metrics capture the financial viability and sustainability of agroecological systems. These include farm income, profitability, input cost reduction, access to local and fair markets, diversification of income streams, and resilience to market shocks.

Institutional and Policy Indicators
These indicators assess the enabling environment for agroecology, including policy support, government investment, research and extension services, multi-stakeholder collaboration, and mechanisms for accountability and participatory governance.

Each indicator will be context-sensitive, allowing for localized definitions and measurement tools. The MEL framework will also include cross-cutting indicators, such as those related to resilience, sustainability, and participatory governance, that span multiple domains.

Table 2 Example of an Indicator Matrix for an Agroecology Framework.

Dimension	Objective	Indicator	Means of Verification	Frequency
Food and Nutrition Security	Improve household food availability and diversity	✓ Number of food groups produced and consumed per household	✓ Household food diaries ✓ Food frequency questionnaires	Bi-annually
		✓ Percentage of households achieving minimum dietary diversity	✓ Household survey	Annually
Soil Health and Fertility	Enhance soil fertility through organic inputs and practices	✓ Soil organic matter content (%)	✓ Soil test results	Annually
		✓ Number of farmers applying compost or mulch	✓ Field visit records ✓ Extension officer reports	Quarterly
Biodiversity	Increase on-farm biodiversity	✓ Number of crop species and varieties cultivated	✓ Farm records ✓ Field observation	Annually
		✓ Presence of beneficial insects and native plants	✓ Biodiversity transect surveys	Seasonally
Water Use Efficiency	Promote sustainable water management	✓ Volume of water used per unit of output (L/kg)	✓ Water meters ✓ Yield reports	Annually
		✓ Area under water-efficient practices (e.g., mulching, drip irrigation)	✓ Field assessments	Bi-annually
Economic Viability		✓ Average farm income per household	✓ Income records	Annually

Dimension	Objective	Indicator	Means of Verification	Frequency
	Improve livelihood outcomes		✓ Household surveys	
		✓ Cost-benefit ratio of agroecological vs. conventional practices	✓ Enterprise budget analysis	Annually
Social Equity	Enhance social inclusion and gender equity	✓ Participation of women/youth in decision-making	✓ Focus group discussions ✓ Gender-disaggregated records	Annually
		✓ Number of farmer-to-farmer knowledge exchange events	✓ Training logs ✓ Attendance sheets	Quarterly
Climate Resilience	Build resilience to climate variability	✓ Adoption rate of climate-resilient practices	✓ Extension reports ✓ Farmer interviews	Bi-annually
		✓ Perceived changes in climate-related risks and adaptive actions	✓ Perception surveys	Annually
Knowledge and Innovation	Strengthen knowledge sharing and experimentation	✓ Number of local innovations documented and applied	✓ Case studies ✓ Field reports	Annually
		✓ Number of training sessions held on agroecological practices	✓ Event reports ✓ Participant lists	Quarterly

8.6 Data Collection and Management

Effective data collection and management are essential for the success of the MEL plan. The plan will utilize a mixed-methods approach that combines quantitative measurements with qualitative insights to capture the complex realities of agroecological systems.

Quantitative methods may include structured surveys, soil and biodiversity assessments, yield data, remote sensing, and climate data. Qualitative methods will include interviews, focus group discussions, participatory rural appraisal, case studies, and ethnographic research. Special emphasis will be placed on participatory monitoring, where farmers and community members are actively involved in collecting, analysing, and interpreting data.

Farmer diaries, logbooks, mobile apps, and community-led monitoring tools will be supported to make data collection accessible and inclusive. Local extension services, farmer associations, and community-based organizations will be trained to support ongoing monitoring.

Data management protocols will ensure that data is stored securely, ethically managed, and shared transparently. The Protection of Personal Information Act (POPIA) will ensure data privacy.

Digital tools, cloud platforms, and open-access repositories may be used to promote accessibility and collaboration across institutions and regions.

8.7 Evaluation and Learning

Evaluation is not a one-time event but an ongoing process that supports accountability, reflection, and improvement. The MEL plan will incorporate both formative and summative evaluations. These will assess the relevance, effectiveness, efficiency, impact, and sustainability of agroecological interventions.

Evaluations will employ a participatory approach and will draw from both quantitative trends and qualitative narratives to build a holistic picture of change. Key evaluation questions may include:

- What changes have been observed in soil health, biodiversity, and productivity?
- How have farmers' livelihoods, food security, and resilience evolved?
- To what extent have marginalized groups, including women and youth, benefited?
- Are institutions, policies, and partnerships effectively supporting agroecological transitions?

Learning will be central to all MEL activities. Regular learning forums, review sessions, and knowledge exchanges will be held at local, provincial, and national levels. Findings will be synthesized and communicated in user-friendly formats to support broader learning and policy engagement. Lessons learned will feed back into the national agroecology strategy, supporting adaptation and scaling of successful approaches.

8.8 Implementation Roadmap

The following steps will guide the implementation of the MEL plan:

- **Co-Design**: Engage stakeholders through the multi-stakeholder agroecology coordination committee group to co-develop the MEL framework, indicators, and Theory of Change.
- **Baseline Assessment**: Collect initial data to establish reference points against which progress will be measured.
- **Ongoing Monitoring**: Conduct regular data collection using participatory tools and methods adapted to local contexts.
- **Evaluation**: Conduct mid-term and end-line evaluations using a mixed-methods approach.
- **Learning and Adaptation**: Share findings widely, reflect on implications, and adapt strategies through feedback loops and collaborative review.

8.9 Conclusion

This MEL plan is designed to be more than a monitoring tool - it is a strategy for co-learning, adaptive management, and systemic transformation. By grounding the MEL system in participatory processes, aligning it with national planning through the multi-stakeholder agroecology coordinating group, and focusing on locally relevant outcomes, this framework will help ensure that South Africa’s agroecological transition is inclusive, accountable, and sustainable. Through continuous engagement, shared learning, and the deliberate application of evidence, this MEL plan will enable stakeholders to collectively shape the path toward just, resilient, and regenerative food systems.

The present NAFSA, a high-level guide, is a living document that will evolve and expand as legislative and other institutional arrangements are put in place. Mechanisms to review progress

to ensure that the Framework, programmes and processes are on track to meet sector objectives are part of the integrated M&E system. A comprehensive review of the Framework should be undertaken every three to five years. However, the Minister may authorise a review of certain components of the Framework to ensure alignment with political mandates and national priorities. The review processes shall be transparent, broad, and inclusive. The National DoA will disseminate the outcomes of the reviews to the public through agreed channels.

9 COMMUNICATION AND AWARENESS STRATEGY

In each of the phases of implementation of the NAFSA, different forms of communication with the role-players and all the stakeholders across all components of the agri-food system value chains must be implemented. Many awareness and communication activities have been listed in the different sections of the implementation plan and timeline (**Appendix 3**). Particularly, in the first phase, a well-planned and thought-out awareness campaign will need to be rolled out. This will form the foundation of the acceptance of the NAFSA by all stakeholders and other role-players and will be critical in soliciting support for the transition from current agricultural practices to agroecological systems.

9.1 PUBLIC AWARENESS CAMPAIGNS

These campaigns need to be well-designed and reach all levels of society using all available forms of media, as different media reach different sectors of the population. As connectivity between farmers and consumers is an integral part of agroecology, it is essential that suitable education materials about the benefits of agroecology for one's health and well-being, as well as that of the environment and the planet as a whole, are made available. Therefore, there should be a focus on the public and all education levels, so that a demand for healthy food will be created. If one follows the example of the awareness campaigns about climate change and *El Nino*, one can see that these concepts have become household words to large parts of the population. A range of different types of documents and operations should be organised via TV, radio, print, etc., on a routine basis, particularly during the first phase.

9.2 FARMER OUTREACH AND COMMUNITY ENGAGEMENT

As all farmers across all provinces constitute the target group for the transition to agroecologically sustainable systems, a specially planned outreach programme needs to be planned in each of the provinces. Therefore, it would be wise to formulate a plan to work from both ‘bottom-up’ and ‘top-down’ as well as scaling out and up/down, so that all the levels of government, civil society, and the private sector concerned with agriculture and the environment are made aware of agroecology concepts. Specifically tailored programmes should also be developed for rural communities, farming cooperatives, and a variety of farmers. These concepts can be shared through all existing channels and forums using a variety of media, as well as farmer-to-farmer dissemination.

9.3 REPORTING SUCCESS STORIES AND CASE STUDIES

As many of the interventions and specific aspects of the transition will need to be location-specific, focused pamphlets and information sheets must be prepared for the different agroecological zones. Farmers who have already adopted agroecology practices and are connected to consumers or the market via post-harvest food processing supply chain players, farmer networks, and via direct marketing to consumers can encourage other farmers to make the transition. Therefore, communication experts need to collect case studies and success stories of agroecology in practice across South Africa and the rest of Africa. The existing civil society and NGO groups will play a vital role in collecting and documenting these case studies from the specific agroecological zones. These can then be publicised, and exchange visits can be arranged for farmers to visit other farmers in similar agroecological zones.

9.4 ANNUAL NATIONAL AGROECOLOGY INDABA

To elevate agroecology concepts and successes obtained, an annual "*National Agroecology Indaba*" should be co-organised by stakeholders, where role-players (from farmers to consumers) can share their success stories and the challenges faced, as well as deepen shared understandings of agroecology. As agroecology becomes more commonplace, this type of "*Agroecology Indaba*" can be organised in similar agroecological zones (for focused information sharing) or in each province. Another opportunity is to place agroecology high on the agenda at the existing Agricultural Shows in each region.

This event should be integrated with other complementary forums such as Agroecology seed and Food Fairs to enable farmers to exchange seed and to expose the public to Agroecological produce.

9.5 INTERNATIONAL EXCHANGE

Considering that there is an international trend in the transition to agroecology, South African farmers and stakeholders should cultivate good relationships with those working on agroecology around the world. South Africans should participate in agroecology networks, tours, workshops, and conferences across Africa and internationally, particularly in regions with similar climatic and agroecological zones. In this way, one can learn from those pioneers and share the successes and challenges of this region.

10 RISK MANAGEMENT AND CONTINGENCY PLANNING

While there is significant potential for agroecology, several challenges must be addressed. These include entrenched interests in conventional agriculture, limited access to resources for smallholder farmers, and the need for systemic change in food systems. However, growing global movements advocating for sustainable agriculture and food sovereignty present opportunities for advancing agroecology. As the DoA Land Care programme has been operational for several years, it could be possible to use or adapt the Land Care Risk assessment tables for the NAFSA (**Appendix 4**).

10.1 ECONOMIC VIABILITY

Transitioning to agroecological practices can require significant investment in new methods and systems that need to be evaluated for economic viability. Farmers may face economic risks if these practices do not yield immediate financial benefits. Another constraint is the existence of a knowledge gap, as farmers may lack the necessary knowledge or training in agroecological principles, leading to ineffective implementation or resistance to change. There may be limited markets for agroecologically produced goods, making it hard for farmers to sell their products at sustainable prices. Shifting away from conventional methods can lead to challenges in managing pests and diseases, especially in the initial stages of transition. Agroecological practices often depend on local environmental conditions, which can be unpredictable due to climate change, affecting yield and sustainability. A lack of supportive policies and institutional frameworks can hinder the adoption of agroecology, as farmers may not receive the necessary assistance or incentives. There might be resistance from the community or stakeholders accustomed to conventional agricultural practices. Implementing agroecology may require more land or water resources, leading to competition with other agricultural or non-agricultural uses. Mitigating these risks often involves education, supportive policies, and the establishment of networks for sharing knowledge and resources among farmers.

10.2 MARKET ACCESS

Market access refers to the ability of producers to sell their products in local, regional, and global markets. For agroecological farmers, several challenges hinder their access to these markets. Many consumers are still unaware of the benefits of agroecological products compared to conventionally produced goods. This lack of awareness translates into limited demand, making it difficult for farmers to sell their produce at competitive prices. Organic products often face stringent standards that can be time-consuming and costly. Smallholder farmers may struggle to meet these standards, which can limit their ability to enter premium markets that value sustainable practices. Agroecological farmers frequently operate on a smaller scale, making it difficult to compete with larger agricultural enterprises that benefit from economies of scale in production and distribution. This can lead to higher transportation costs and logistical hurdles in reaching consumers. The agricultural market is often dominated by a few large corporations that control distribution channels. This concentration of market power can disadvantage small-scale agroecological producers, who may struggle to negotiate fair prices for their products. Many agroecological farmers lack access to credit and financial services that are essential for scaling production and improving market access. Without the necessary financial support, these farmers may be unable to invest in marketing, distribution, and production improvements.

In addition to developing value chains and accessing niche markets, there is an urgent need to strengthen viable local market spaces and supporting infrastructure that enables smallholder and agroecology producers to sell directly to consumers. Local food markets, such as community markets, street vendors, and farmers' markets, provide affordable, fresh, and nutritious produce while reducing the distance and time between producers and consumers. These markets not only create important livelihood opportunities for farmers but also promote community-level food security and stimulate local economies. However, the lack of investment in infrastructure such as storage facilities, transport systems, and market spaces limits the full potential of these local markets, leaving small-scale producers at a disadvantage compared to larger, more commercial suppliers.

Institutional markets also present significant opportunities to support agroecology and smallholder farmers, particularly through government-led programmes such as school nutrition schemes, hospitals, and public procurement systems. These markets could serve as guaranteed outlets for agroecological produce, creating stable demand while improving access to healthy and diverse foods for vulnerable populations. Yet, challenges remain, including unreliable funding, inefficiencies in government delivery systems, and the absence of policies that prioritize or mandate quotas for sourcing from smallholder and agroecology producers. Addressing these barriers through policy reforms, targeted investment, and improved governance could unlock the potential of both local and institutional markets to drive inclusive, resilient, and sustainable food systems.

10.3 Support for transitioning

Transitioning from conventional to agroecological practices requires coordinated action and support across multiple levels. At the **farm and community level**, farmers need access to knowledge-sharing platforms, training, peer-to-peer learning, and incentives that encourage experimentation and adoption of agroecological innovations. At the **local government level**, municipalities can play a critical role by investing in extension services, local market infrastructure, and initiatives that link farmers directly to consumers. The **provincial level** must provide technical support, funding streams, and monitoring mechanisms to ensure that policies are effectively implemented and adapted to regional contexts. At the **national level**, enabling policies, dedicated financial support, and integration of agroecology into broader agricultural, climate, food security and natural resources strategies are essential to create a supportive environment. Together, these levels must work in alignment, ensuring that farmers are not isolated in the transition but are backed by coherent policies, institutional support, and a fair market system that rewards sustainable practices. The multi-stakeholder agroecology coordinating committee group will organise and manage the communication between the stakeholder groups and government levels.

10.4 Mitigating risk

Transitioning to agroecology inevitably involves risks, particularly during the initial stages when farmers may face reduced yields, higher labour demands, or the costs of adapting to new practices and technologies. These challenges can be compounded by threats such as climate change, pest and disease outbreaks, and limited access to appropriate, labour-saving equipment suited to small-scale production. Addressing these risks requires a comprehensive support system that enables farmers to navigate short-term difficulties while building resilience for the long-term. Targeted financial assistance, such as grants, subsidies, credit facilities, and risk-sharing mechanisms, can help buffer farmers against income losses during the transition period.

At the same time, investment in research and development of locally appropriate technologies - such as small-scale machinery, water-harvesting tools, and climate-smart innovations - can ease labour burdens and enhance productivity in agroecological systems. Strengthening extension services and farmer-to-farmer learning networks is also essential to ensure knowledge transfer, reduce uncertainty, and support adaptive management strategies.

A critical strategy for mitigating risks lies in intentionally reorienting markets to better serve agroecological producers. Strengthening local food systems through initiatives such as farmers' markets, community-supported agriculture, street vending spaces, and cooperatives provides farmers with direct access to consumers, ensuring fairer prices and reducing dependence on volatile, long value chains. These markets also benefit communities by improving access to fresh, nutritious, and culturally appropriate foods. Institutional markets, such as school nutrition programmes, hospitals, prison service, and public procurement systems, present additional opportunities to create stable demand for agroecological produce. However, this requires addressing existing challenges such as unreliable funding flows, bureaucratic inefficiencies, and the lack of procurement quotas for smallholder and agroecology farmers. Government purchasing power, if strategically directed, can be a powerful tool to both mitigate risk and actively drive the transition towards agroecology.

Furthermore, collective action through cooperatives, associations, and civil society groups can increase farmers' negotiating power, reduce marketing costs, and enable joint branding and promotion of agroecological products. Digital platforms and mobile applications also have an important role to play in connecting farmers with consumers, providing access to real-time market information, and improving decision-making. When supported by intentional policies, investment in infrastructure, and institutional alignment, these market-oriented strategies go beyond simply mitigating risks - they actively create more resilient and equitable agri-food systems that benefit both producers and consumers.

11 CONCLUSION AND CALL TO ACTION

The concepts of agroecology are not new; however, they are most pertinent to addressing the present threat of climate change, loss of biodiversity and overpopulation. Agroecology is not limited to the farm or the rural areas: it includes all those involved in the food sector and, particularly, connectivity between the producers and consumers and others across the agri-food supply chain. The FAO and HLPE Agroecology Elements and Principles should be kept at the forefront of developing plans for the transition to viable agroecological systems in South Africa.

When considering possible interventions, one must give special consideration to the different agroecological zones and the potential of specific areas, considering the context of climate, soil, slope, and other natural parameters as well as cultural preferences. PDALA has laid a good foundation for the implementation and roll-out of agroecology in each of the 12 specific agroecosystem zones across the country. All stakeholders and those concerned about the negative effects of climate change should be prepared to commit themselves to working together on collaborative action to make the necessary transition to sustainable agroecological systems.

Agroecology can be a great success if all role-players and stakeholders collaborate in the transition and contribute to the implementation across South Africa. This will then result in a major transformation of the agricultural sector, which will have positive effects on social equity, food security and the health of the South African population. Therefore, this transition process must be conducted with the participation and commitment of all affected parties from both government and non-government organisations across the broad spectrum of affected sectors, including, but not limited to, agriculture, environment, food, transport, retail, and trade. This is a call to individuals, government departments, civil society, and the private sector to show their commitment to a sustainable, resilient, and equitable agricultural future for all the people of South Africa.

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APPENDICES

Appendix 1 Comparison of the thirteen HLPE principles and the ten FAO elements

HLPE **Principle**	**FAO's ten elements**
Environmental sustainability	
1. **Recycling**. Preferentially use local renewable resources and close as far as possible resource cycles of nutrients and biomass.	Recycling
2. **Input reduction**. Reduce or eliminate dependency on purchased inputs and increase self-sufficiency.	Efficiency
3. **Soil health**. Secure and enhance soil health and functioning for improved plant growth, particularly by managing organic matter and enhancing soil biological activity.	Reflected in diversity, synergies and resilience
4. **Animal health**. Ensure animal health and welfare.	Reflected in resilience
5. **Biodiversity.** Maintain and enhance diversity of species, functional, diversity and genetic resources and thereby maintain overall agroecosystems biodiversity in time and space at field, farm, and landscape scales.	Part of diversity
6. **Synergy.** Enhance positive ecological interaction, synergy integration and complementary among the elements of agroecosystems (animals, crops, trees, soil, and water).	Synergies
7. **Land and natural resource governance**. Strengthen institutional arrangements to improve, including the recognition and support of family farmers, smallholders, and peasant food producers as sustainable managers of natural and genetic resources.	Responsible governance
Social justice and participation	
8. **Co-creation of knowledge**. Enhance co-creation and horizontal sharing of knowledge, including local and scientific innovation, especially through farmer-to-farmer exchange.	Co-creation and sharing of knowledge
9. **Social values and diets**. Build food systems based on the culture, identity, tradition, social, and gender equity of local communities that provide healthy, diversified, seasonally and culturally appropriate diets.	Parts of human and social values, and food traditions
10. **Participation**. Encourage social organization and greater participation in decision-making by food producers and consumers to support decentralized governance and local adaptive management of agricultural and food systems.	Part of human and social values
Economic fairness and participation	
11. **Economic diversification**. Diversify on-farm incomes by ensuring that small-scale farmers have greater financial independence and value addition opportunities while enabling them to respond to demand from consumers.	Part of diversity, circular and solidarity economy
12. **Fairness**, Support dignified and robust livelihoods for all actors engaged in food systems, especially small-scale food producers, based on fair trade, fair employment, and fair treatment of intellectual property rights.	Part of human and social values
13. **Connectivity.** Ensure proximity and confidence between producers and consumers through promotion of fair and short distribution networks and by re-embedding food systems into local economies.	Part of circular and solidarity economy

Source: Wezel et al (2020), reordered and adapted to include overarching dimensions.

Appendix 2 NAFSA Proposed ARC-DoA Agroecology Framework Project and NAFSA Proposed Implementation Plan.

2023-2025

1. **Detailed Project Plan:** Develop a detailed project plan explaining the methodology to be used in developing the framework and engaging the stakeholders.
2. **Desktop Study** of current agroecological practices used in South Africa, including making an inventory of all available baseline information.
3. **Analysis of Policies:** Compile international and South African legislation, policies, and strategies related to the effective application of agroecological practices, including available guidelines and action plans for implementation.
4. **Site Visits Stakeholder Engagements:** Participatory engagements with stakeholders and beneficiaries in f**ive** selected study areas to inform and abstract the crux of what is needed for a viable agroecological agri-food system.
5. **Write Agroecology Framework:** Using information collected in previous objectives, formulate a 'Draft National Agroecological Framework for South Africa', to guide the transition from the current technological and institutional arrangements in agri-food systems to viable, sustainable agroecological agri-food systems.
6. **Stakeholder Engagements** about 'National Agroecological Framework for South Africa', including stakeholders, and accompanied by an implementation plan.

2025-2030

7. **Advocacy and Awareness:** Raise awareness among policymakers, farmers, academia, and consumers about the benefits of agroecology (2025/26)
8. **Policy and Multi-Stakeholder Engagements:** Influence the implementation of policies that support agroecology at local, provincial, and national levels (2025/26 & 2029/30).
9. **Capacity Building and Training:** Develop training materials for farmers, extension practitioners, and policymakers on agroecological principles and best practices (2026/27/28).
10. **Learning from Operational Examples of Agroecology Systems:** Use existing operational agroecology farms or groups as pilot projects to showcase viable models in each agroecological zone (2025/26/27/28/29/30).
11. **Analysis of Agroecological Farming Systems:** Analysis of farm economics, value chains, emerging markets, and socio-economic impact of agroecology food systems (2025/26/27/28/29/30).
12. **Institutionalization of Agroecology within ARC:** Strategic alignment of agroecology within a relevant ARC campus for continuity to ensure the development of capacity and expertise (2025/26/27/28/29).

Appendix 3 NAFSA Proposed Implementation Plan.

Time Frame	Activities	Responsible Organisation	Collaborators
Aug 2025	Finalisation of NAFSA	ARC & DoA	
Apr 2025 - Apr 2026	Implement Rescoping Work package: ARC-DoA	ARC & DoA	
May - Nov 2025	Revising & Editing NAFSA		Reference Group members
Sept – Oct 2025	High & National Level Consultations (Stakeholder & policy makers)	ARC & DoA	Reference Group members
Dec 2025	Approval by DG DoA	DoA Director: LSU	Reference Group members
Jan 2026	Report back to the Parliamentary Committee on Agriculture	DoA Director: LSU & ARC	
Jan 2026	Approval by Minister: Agriculture	DoA Director: LSU & ARC	
Feb 2026	Launch by the Minister	DoA Director: LSU & ARC	
Mar 2026	Incorporation in the next APP	DoA	
July 2025 – Apr 2026	Securing & motivating funding		
Jan – Apr 2026	Establishment of structures		
Jul 2025 - Dec 2026	**Phase #1:** Awareness Building and Forum Establishment		
Jul 2025 - Apr 2028	**Phase #2:** Skills Development and Dissemination		
Jan 2027 - Apr 2030	**Phase #3:** Upscale to Other Municipalities and Agroecological Zones		
Apr 2025 - Apr 2030	**Phase #4:** Monitoring, Evaluation, and Revision of Programme		

Appendix 4 DALRRD Land Care Risk Ratings

Likelihood Ratings (LR)

AC	**Almost certain:** Greater than a 99% chance to occur
VL	**Very likely:** A 90 – 99% chance to occur
L	**Likely:** A 66- 90% chance to occur
EW	**Could go either Way**: A 33 – 66% chance to occur
U	**Unlikely:** A 10 – 33% chance to occur
VU	**Very unlikely:** A 1 – 10% chance to occur

Severity Ratings (SR)

PT	**Project termination:** Will result in the termination of the project
VS	**Very** se**vere:** Extremely difficult to rectify; majority of outputs will not be achieved
S	**Severe:** Will be very difficult to rectify; some outputs will not be achieved
M	**Moderate:** Will require a considerable effort to rectify; possible to achieve all outputs
L	**Low:** Will require some effort to rectify; project will achieve all outputs
VL	**Very low:** Can be easily rectified with minor effort; almost no impact on outputs