



Western Cape  
Government

FOR YOU



Department of Agriculture

# A Government Perspective – Building Climate Resilience in Agriculture

Prof Stephanie Midgley

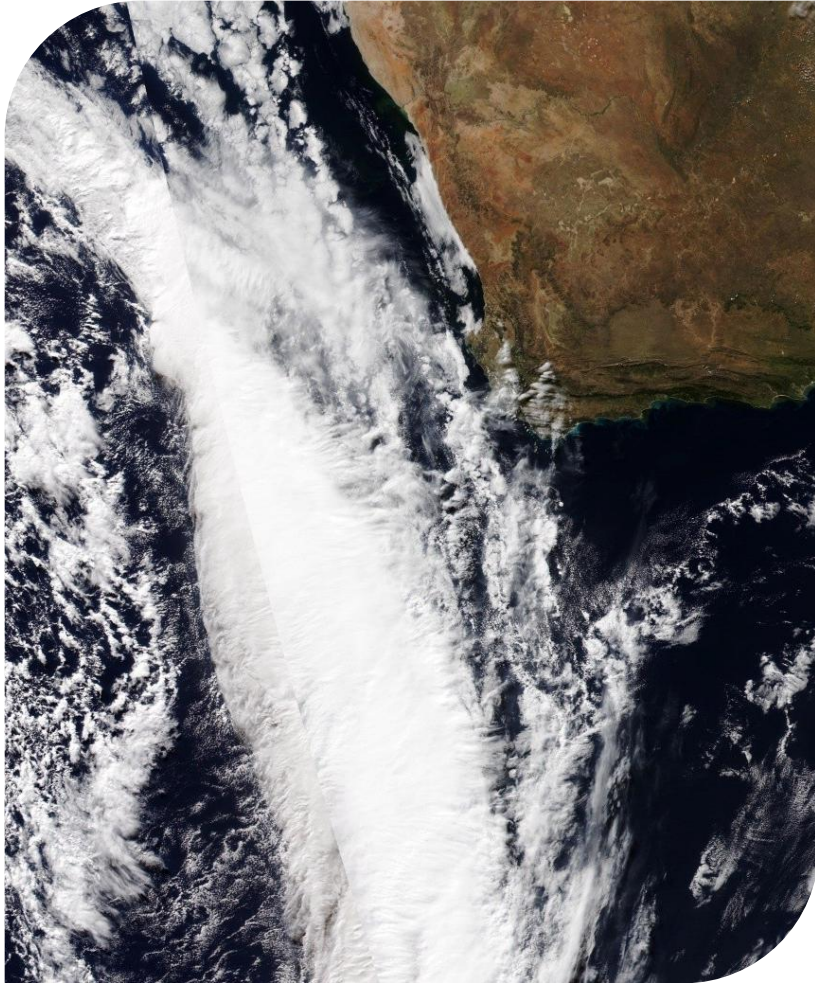


Berries ZA Annual Technical & Trade Symposium  
Kronenburg, Paarl, 28 May 2026

# Government must take the long-term view while responding to immediate needs

## Are we getting the balance right?





## 1. Defining the problem

## 2. Policy and legal instruments

## 3. Specific themes:

- Safeguarding food security
- Sustainable management and use of natural resources
- Disaster management & risk reduction
- Awareness and capacity building
- Research, technology and information services
- Coordination and partnerships



# CLIMATE IMPACTS IN SOUTH AFRICA have cascading effects on people's lives



## HEATWAVE



Working outdoors becomes difficult and dangerous.  
*Global warming of 3°C reduces labour capacity by 30–50%.*



Land is less suitable for crops and livestock suffer.  
*A low emissions scenario lowers heat risk for cattle by 84%.*



The economy is affected, including tourism.  
*By 2050, visitors to national parks could fall by 4%.*



## DROUGHT



Severe drought happens more often.  
*Low rainfall in 2015–17 was 3–6 times more likely.*



There is less drinking water and crops suffer.  
*In 2015–17, Cape Town's reservoirs fell to 20% capacity.*



Species richness declines in biodiversity hotspots.  
*Extinction rate in the fynbos biome rises by 25%.*



## HEAVY RAINFALL



Heavy rainfall is more frequent and extreme.  
*Heavy rain in April 2022 was twice as likely.*



Infrastructure is damaged and people are displaced.  
*Floods in 2022 forced thousands to leave their homes.*



Some people are hit harder and inequality widens.  
*Female-led homes are more affected by climate disasters.*



The impacts of climate change in South Africa are hindering efforts to tackle poverty, unemployment, food insecurity, failing infrastructure and widening inequality.

# Defining the Climate Problem

## Also, changing dynamics of:

- Rainfall seasonality
- Weather variability
- Wind & storms
- Hail
- Frost
- Fire
- Chill accumulation
- Pests & diseases
- Poverty & vulnerability

Changes are already happening with devastating impacts

# Climate Change is a “Threat Multiplier”



2024: Eskom pylons after windstorm – no electricity across large part of the Karoo for 15 days.



R5.9 billion and 30 000 jobs lost during the 2015- 2019 drought and associated fires for Agriculture in the Western Cape (alone).



2017: Imizamo Yethu in Hout Bay. Source: [www.groundup.org.za](http://www.groundup.org.za)

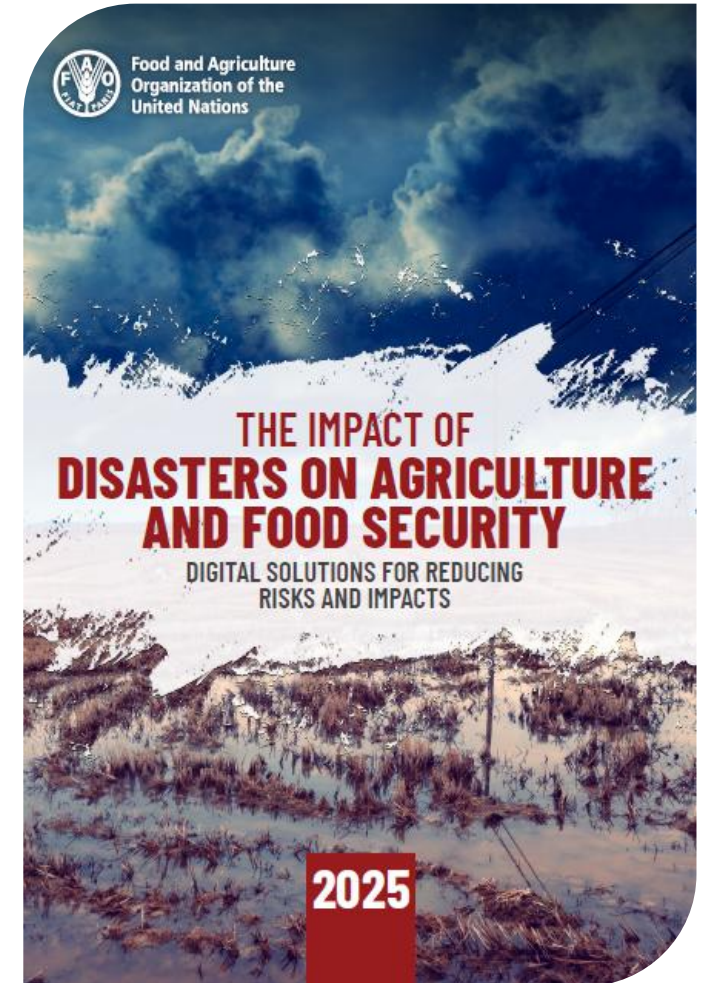


Rough estimates reflect approximately R1 billion in damages to agricultural assets through June 2023 floods, R2.4 billion in September 2023 floods and R3 billion in June 2024 floods.

# Disasters cost global agriculture \$3.26 trillion over three decades

FAO. 2025. *The Impact of Disasters on Agriculture and Food Security 2025 – Digital solutions for reducing risks and impacts*. Rome. <https://doi.org/10.4060/cd7185en>

- Worldwide, **extreme and unprecedented weather events** are threatening food production and security.
- Exacerbated by simultaneous **conflicts and economic shocks**.
- **Impacts** ripple through infrastructure damage, market disruptions, financial system failures and ecosystem service degradation that can last for many years.
- **USD 3.26 trillion** in agricultural losses over 33 years (1991–2023).
- **Africa** is bearing the brunt of these impacts, equating to around 7.4% of agricultural gross domestic product.



# Agricultural damages from extreme weather events - Western Cape

Disaster	Estimated Agricultural Damages
2015-2018 Drought	> R5.9 billion
2023 Floods	> R3.8 billion
2024 Floods	> R2.8 billion
2026 Floods	Under assessment ~ R6.3 billion stone & pome, 26% of gross production value)



Damages to production (crop losses, plant damage), natural resources (river systems, soil erosion), water infrastructure (dams, irrigation equipment), buildings, fencing, roads, electricity

# Climate-related risks and impacts are not the same everywhere

**Climate impacts differ widely from place to place, from farm to farm, from field to field.**

The scale of the impacts depend on:

- Regional and local climate characteristics
- Local farming systems
- Natural resources
- Infrastructure
- Socio-economic situations

Responding to climate variability and climate change demands scientifically sound, reliable, high-resolution data and analysis, for tailored context-specific solutions that protect production and profitability.

# Developing and implementing policies, strategies, laws and regulations, with financial instruments



# Principles

- Ensure **alignment** with global climate commitments and national developmental priorities.
- Establish the **policy, legal and structural foundations** necessary to integrate climate adaptation and mitigation into all planning processes.
- **De-risk** social and economic development planning and investments.
- Ensure cross-sectoral **policy coherence**, especially between agriculture, environment, water and energy.
- Move from crisis-driven actions and spending towards **preventative risk management**.
- Direct **financial resources** effectively to achieve climate targets.

**Government has a constitutional obligation to safeguard the environment for present and future generations**



**Everyone has the right**

**a. to an environment that is not harmful to their health or well-being; and**

**b. to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that**

**i. prevent pollution and ecological degradation;**

**ii. promote conservation; and**

**iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.**

**- Section 24 of the Constitution of the Republic of South Africa)**

# Key Policy Instruments: International Obligations (United Nations)



## Paris Agreement (2015)

- Legally binding international treaty aimed at **limiting global warming to well below 2°C**, preferably 1.5°C, above pre-industrial levels
- Increase the ability of countries to **deal with the impacts of climate change**



## Sustainable Development Goals (2015)

- 1.No poverty**
- 2.Zero hunger**
- 3.Good health and well-being
- 4.Quality education
- 5.Gender equality
- 6.Clean water and sanitation**
- 7.Affordable and clean energy**
- 8.Decent work and economic growth
- 9.Industry, innovation and infrastructure
- 10.Reduced inequalities
- 11.Sustainable cities and communities
- 12.Responsible consumption and production**
- 13.Climate action**
- 14.Life below water
- 15.Life on land**
- 16.Peace, justice, and strong institutions
- 17.Partnerships for the goals

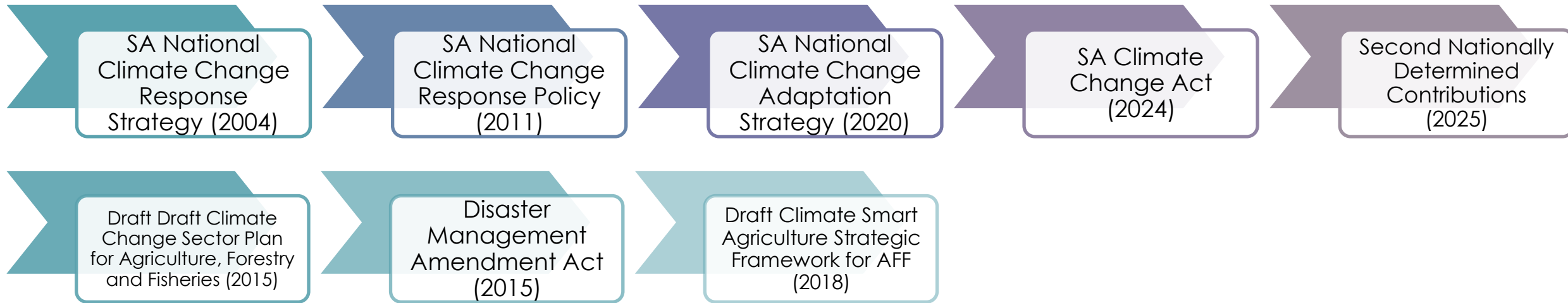


## Sendai Framework for Disaster Risk Reduction (2015)

- **A voluntary, non-binding agreement to prevent new and reduce existing disaster risks.**
- 1.Reduced mortality
- 2.Fewer affected people
- 3.Reduced economic loss
- 4.Reduced infrastructure damage
- 5.National Strategies
- 6.International cooperation
- 7.Early Warning Systems

# Climate Change and Disaster Management Policy Framework

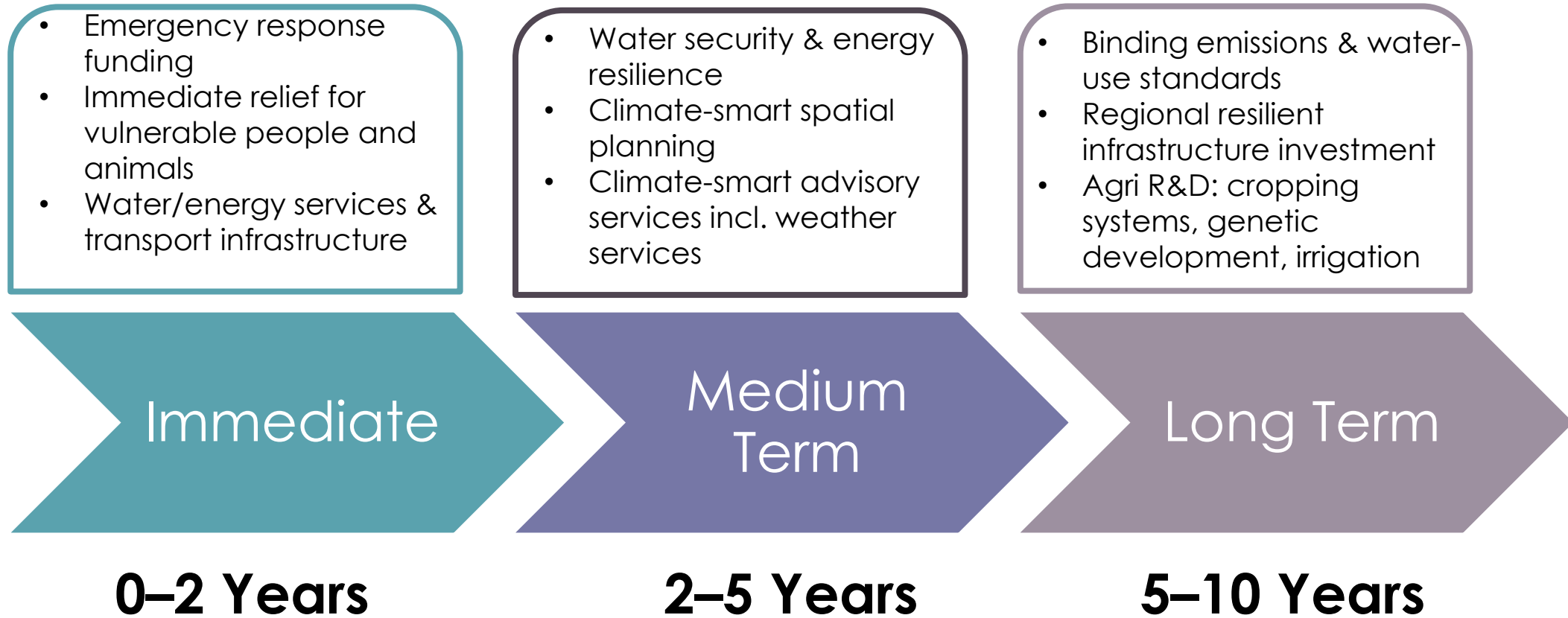
## National Climate Change Policies, Strategies and Laws



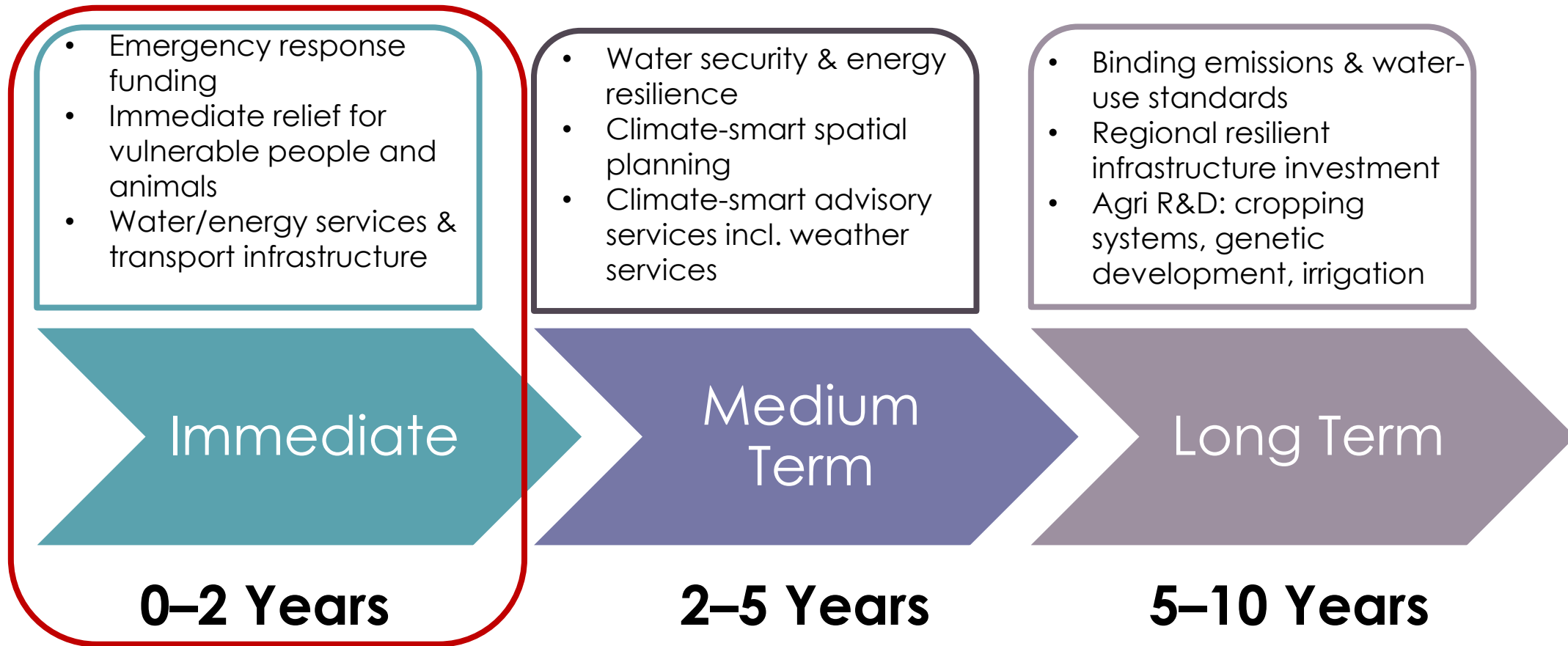
## Provincial Climate Change Strategies (example: Western Cape)



# Key Policy Instruments: Short to Long Term



# Key Policy Instruments: Short to Long Term (are we stuck?)

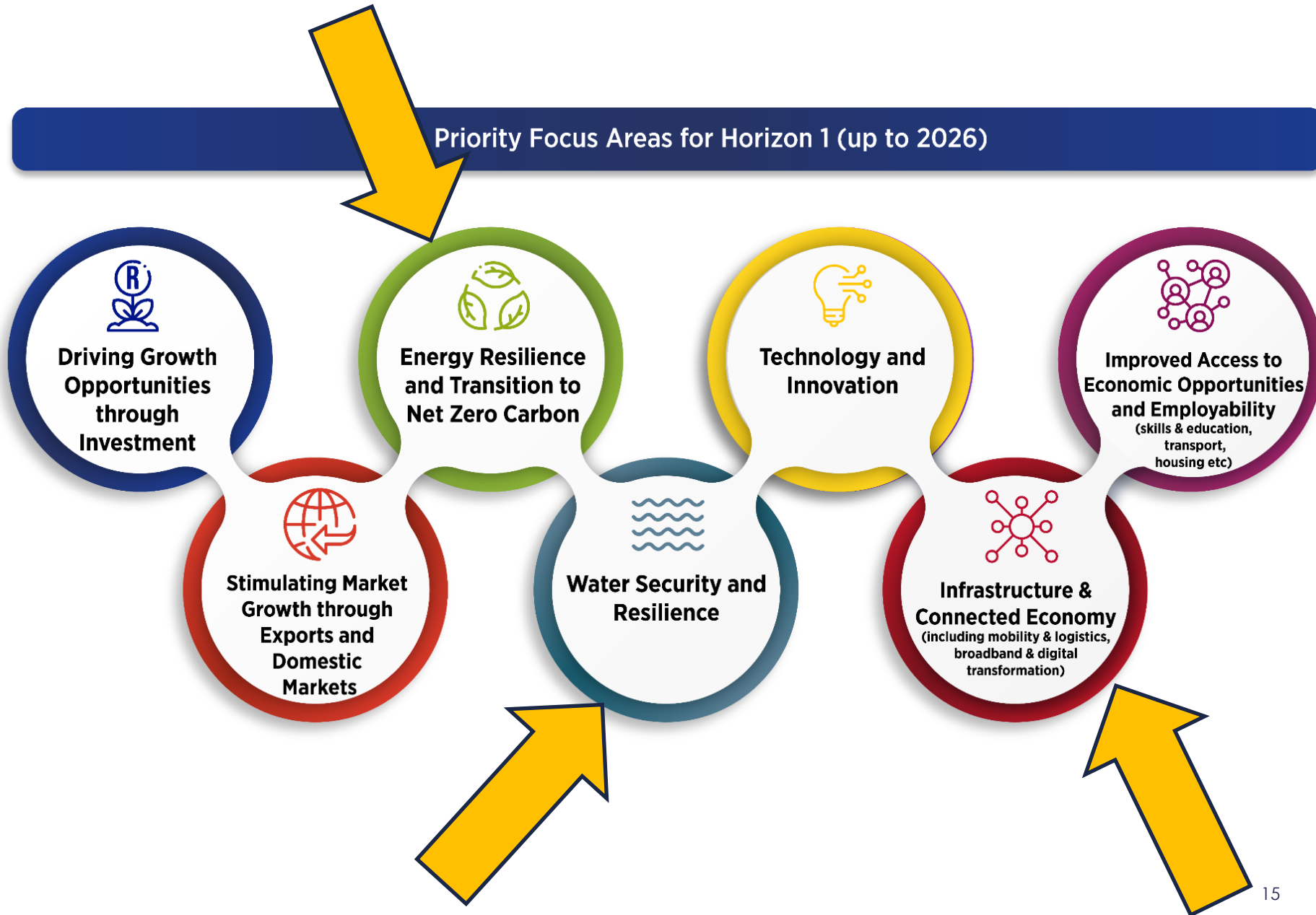


- ***Instruments are complementary — early-stage actions de-risk and enable the later ones***
- ***Short-termism carries risks of “maladaptation” and lock-in***

# Western Cape Growth 4 Jobs Strategy

7 priority focus areas identified for short and medium term based on the need to:

- Horizontally enable the economy
- Addressing key binding constraints and most pressing issues



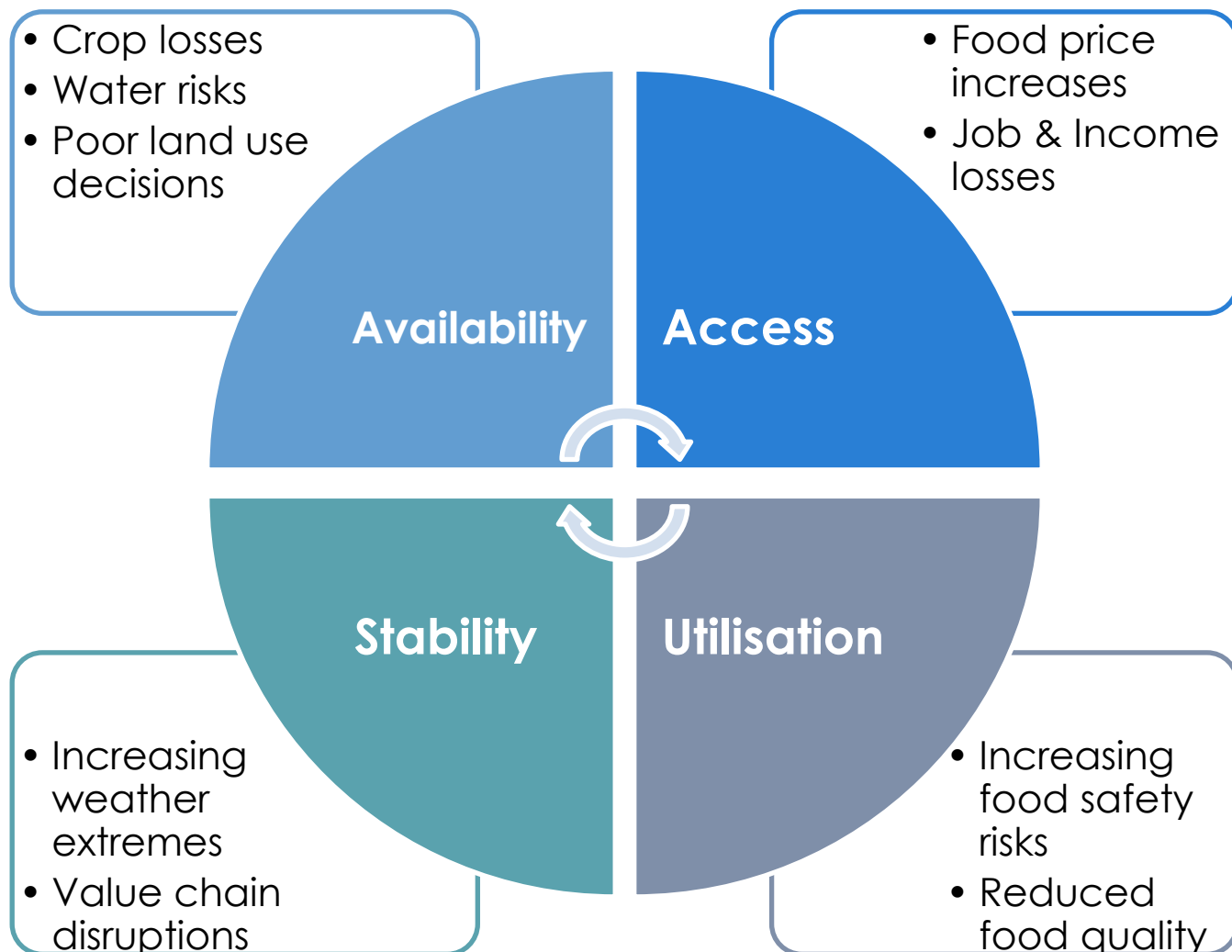
Through policies, financial investments, and infrastructure development, governments aim to:

- (a) safeguard **national food security**, while
- (b) strengthening the agricultural sector's **long-term productivity, sustainability and economic growth**.



Safeguard food security

# How climate shocks threaten food security



- SA is currently nationally food-secure. Impacts hit hard at household level.
- By mid century, South Africa could lose between 5.7% and 7.1% of the agricultural sector's contribution to value added.
- Impacts on agriculture alone can determine a drop in GDP by 6% by 2080.
- Household incomes could be reduced by ca. R95 billion.

*G20 Climate Risk Atlas for South Africa*

**The single most important lever for food security in sub-Saharan Africa could be the socioeconomic development pathway, not the climate scenario.**

*Ren et al. (2018) Climatic Change 146: 517-531.*

# Sustainable management and use of natural resources

- 
- Restore ecological infrastructure to improve landscape productivity and the **climate resilience of ecosystem services**, while creating jobs and supporting socio-economic development.
  - **Reduces the impact of climate change on the severity of extreme drought events.**



© REUTERS/Mike Hutchings

**R49 million investment in clearing catchments of pine**



**R88 million estimated value of water saved (Coldrey et al. 2022)**

# Disaster management & risk reduction, and resilient infrastructure



- Governments have a duty to **protect rural people, livelihoods and food supply chains** against climatic risks like drought, flood and extreme heat.
- Governments play a central role in building climate resilience for agriculture by **shifting from reactive disaster management to proactive disaster risk reduction strategies** that enable adaptation.

# Incorporating climate change into disaster risk reduction

Integrating Climate Change into Disaster Risk Reduction Community (Farmer) Risk Assessment Engagements



Multi-stakeholder Dialogue on Climate Disaster Solutions, 24-25 April 2023. Learning from past disasters.



## Priority Themes

Financial support instruments

Improved adaptive production methods

Better management of water infrastructure and irrigation systems

Problematic laws and regulations that impede disaster risk management

Improved adaptive technology and innovation

Better water usage and irrigation practices

Use of scientific data, forecasting and early warning systems

# Awareness and capacity building



# Climate Change and Agriculture Youth Summits



**30-31 October 2024  
Rawsonville**



**20-21 July 2022  
Elsenburg**

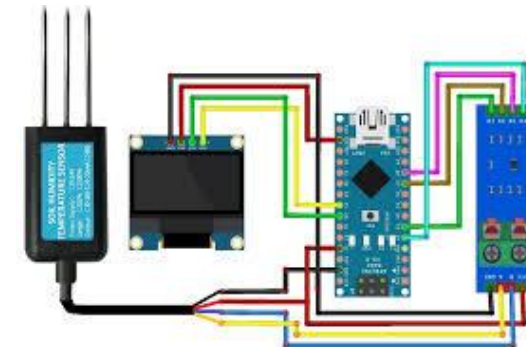
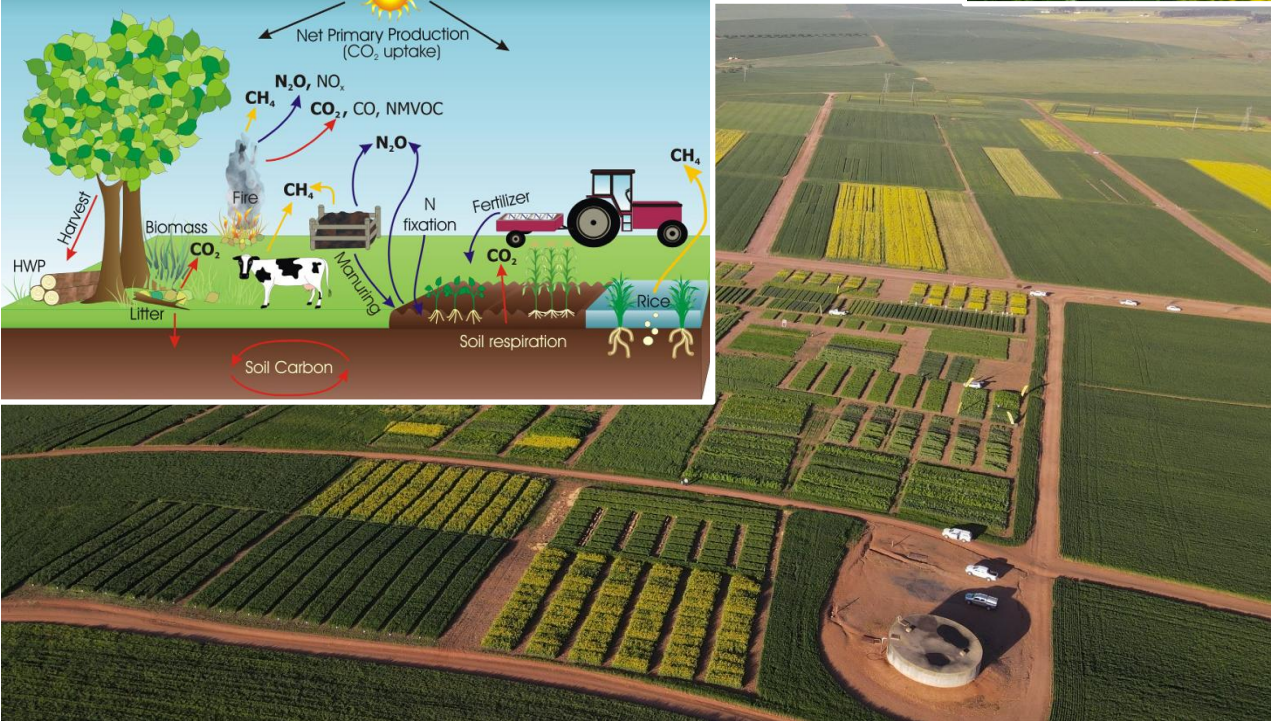
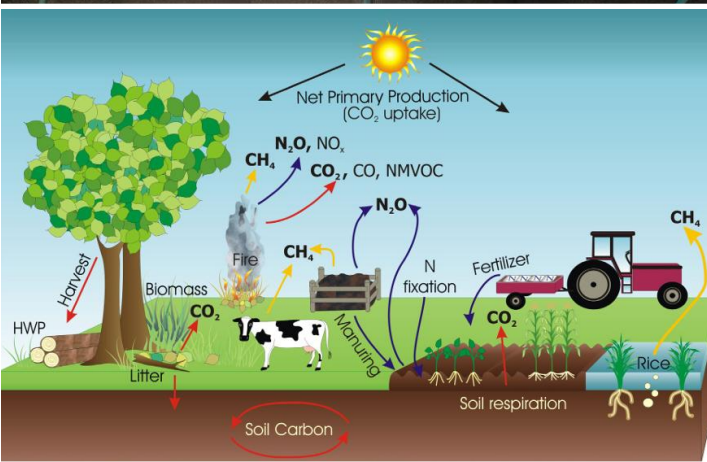
**21-22 August 2023  
Oudtshoorn**



# Research, technology and information services

## Research Support Services & Tech Transfer Services

- Climate change impacts and opportunities for canola
- Carbon smart agriculture of dryland small grain production
- “Flyover” surveys (agri footprint)
- Updated mapped climate trends and projections
- Innovative sensor technology for Precision Agriculture



# Tools developed/supported by WC-DoA

- **FruitLook:** a web-based portal to assist farmers in optimising in-field water use through satellite-based data and data products.
- **Cape Farm Mapper:** an online mapping tool to assist farmers with decision making in production and environmental management.
- **Weather Station Portal:** Network of 37 weather stations deployed across the Western Cape; data used for own research purposes and to fill gaps in national networks.
- **Confronting Climate Change:** carbon footprinting for farms, packhouses, cold stores. Fruit, wine, maize and vegetables.
- **GreenAgri** (managed by GreenCape): an information-sharing portal for farmers, researchers, private and non-governmental agencies interested in smart agricultural practices.





# Coordination and partnerships

# Fostering coordination and partnerships at various scales



Mediterranean Climate Action Partnership



Smallholder farming communities



Commercial farmers in sensitive catchments

- Joint risk-responsive planning & implementation
- Build capacity in WUAs / IBs, FPAs, advisors, etc.
- Better government-farmer communications
- Shared learning with partners at all scales

# The partnership opportunity: What each side brings

## GOVERNMENT:

- Stable, long-horizon policy signals
- Co-investment & blended finance vehicles; Climate Budget Tagging
- Climate resilient engineered and ecological infrastructure
- Future-focused planning for water, land, energy, remedies, markets, education
- Climate services, early warning infrastructure, disaster response, protect the vulnerable

## PRIVATE SECTOR:

- R&D, technology innovation & deployment
- Next level high-res weather data and advisories for producers
- Training and advice
- Investment capital at scale & speed; innovative financial models
- Driving efficiencies, profit and jobs
- Reporting, accountability & traceability



Co-operative systems to monitor and respond rapidly to pest- and disease-related crises



---

Thank you

[Stephanie.Midgley@westerncape.gov.za](mailto:Stephanie.Midgley@westerncape.gov.za)

[www.greenagri.org.za](http://www.greenagri.org.za)