

KORONIVIA JOINT WORK ON AGRICULTURE workshop: Socioeconomic and food security dimensions of climate change in the agricultural sector (South Africa)



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Microsoft Teams

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Presentation Outline



agriculture, land reform
& rural development

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Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

01 South Africa Socio-economic Overview

02 Agriculture and Food Economy at a Glance

03 South Africa Climate Change Challenges

04 In-Country Ongoing Initiatives

05 Areas of assistance from Koronivia

06 Concluding Remarks



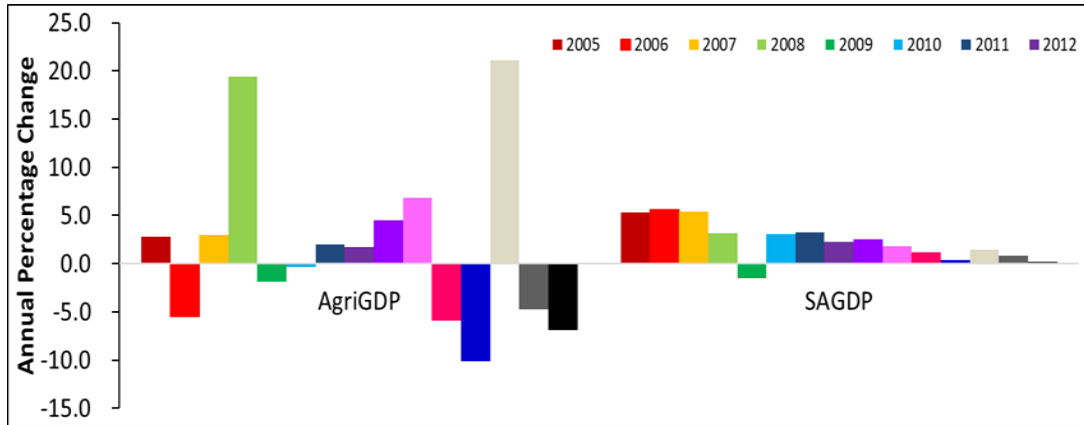


Socio-economic overview



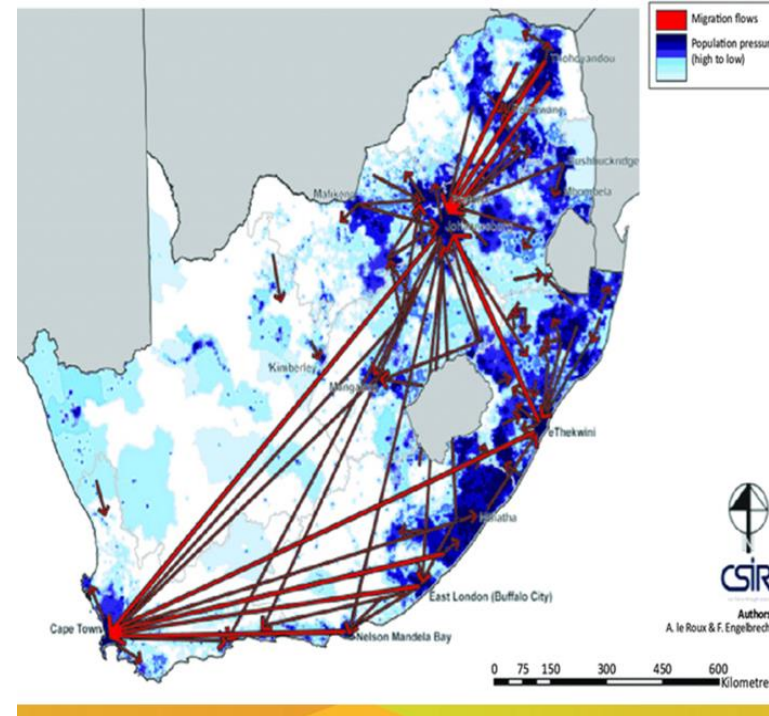
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South African agriculture was already constrained prior to COVID 19 outbreak due to series of droughts, low inclusivity caused by high entry barriers for new players, biosecurity issues, rising input costs induced by the weakening local currency, and deteriorating market, logistics, processing and research infrastructure.

Jobless migration to cities & growing urban land hunger



Widening Inequality & Growing Poverty Induced Violence & Crimes



- SA's low economic growth & investments causing poverty, unemployment and inequality
- Due to poverty there is jobless urban population migration leading to a *"Middle Income Trap"*
- There are 14.8 million people unable to have a plate of food on daily basis – this picture being before COVID-19



Land, Agriculture and Food Economy at Glance



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Dual Agricultural Sector Problem

| Commodities | Average: 2019-2015 | | |
|-------------|--------------------|------------------------|------------------------------|
| | Employment | Production Value R'000 | Black Farmer Share in Output |
| Maize | 29,289 | 27,038,097 | 4.7% |
| Soybean | 7,654 | 5,698,270 | 3.1% |
| Wheat | 2,912 | 5,805,830 | 1.3% |
| Cotton | 3,876 | 1,967,187 | 2.4% |
| Citrus | 128,219 | 15,046,134 | 12% |
| Deciduous | 79,443 | 15,660,627 | 10% |
| Viticulture | 163,441 | 7,057,260 | 1.6% |
| Potato | 42,158 | 6,972,320 | 1.0% |
| Tomato | 9,764 | 2,364,149 | 8.6% |
| Wool | 23,976 | 3,397,506 | 11.0% |
| Mohair | 6,765 | 554,582 | 12.8% |
| Cattle | 89,752 | 31,992,265 | 34.0% |
| Poultry | 52,836 | 47,863,345 | 4.2% |

| Production: Tons | 1994 | 2018 | Growth |
|------------------|-----------|------------|--------|
| Maize | 4,866,000 | 13,104,000 | 169% ↑ |
| Orange | 875,662 | 1,774,397 | 103% ↑ |
| Beef | 507,500 | 1,018,900 | 101% ↑ |
| Potatoes | 1321000 | 2462000 | 86% ↑ |

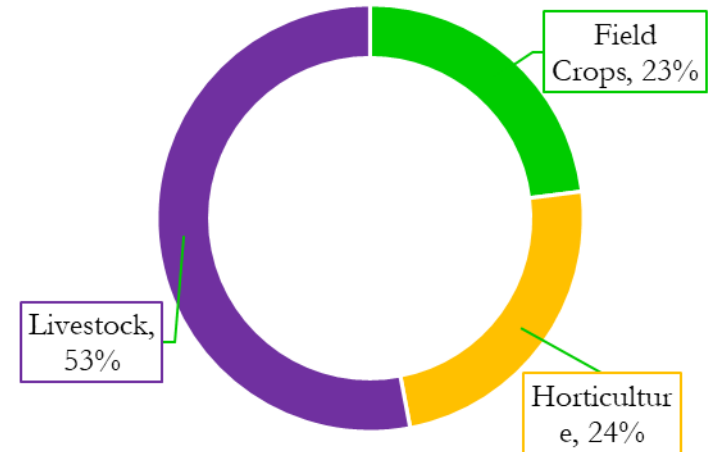
| Trade: Rmil | 1994 | 2018 | Growth |
|---------------|-------|--------|----------|
| Imports | 4,895 | 75,229 | 1 437% ↑ |
| ProcExports | 3,896 | 62,996 | 1 517% ↑ |
| UnProcExports | 4,159 | 47,040 | 1 031% ↑ |

| Indicators | 1994 | 2018 | Unit |
|---------------------|------------|------------|--------|
| # of AgriJobs | 921,700 | 865,000 | -6% ↓ |
| Ha of ComAgriLand | 82,759,302 | 79,448,930 | -4% ↓ |
| # of ComFarmers | 57,980 | 40,022 | -31% ↓ |
| # of SmallFarmers | 1,292,600 | 2,312,000 | 79% ↑ |
| AgriBudget: % of BE | 5.01 | 1.6 | -68% ↓ |
| PSE: % of GFR | 14.9 | 2.5 | -83% ↓ |
| GFCF % of AgriGDP | 19 | 15 | -21% ↓ |

| Poverty Indicators | 2006 | | 2017 | | Growth | |
|--------------------|-------|-------|-------|-------|--------|--------|
| | Rural | Urban | Rural | Urban | Rural | Urban |
| Lower Poverty Line | 74.9 | 34.3 | 65.4 | 25.4 | -13% ↓ | -26% ↓ |
| Food Security Line | 48.2 | 14.6 | 45.6 | 13.4 | -5% ↓ | -8% ↓ |
| Upper Poverty Line | 87.6 | 52 | 81.3 | 40.6 | -7% ↓ | -22% ↓ |

Source: StatsSA and DALRRD Abstract, 2020

Share in Gross Production Value



| Sub-sector | Product | Turnover Rm | Share in GDP |
|------------------|--------------------------|----------------|----------------|
| Agriculture | Field Crops | 56970 | 0.6% |
| | Horticulture | 74368 | 0.8% |
| | Livestock | 128199 | 1.4% |
| | Mix | 43232 | 0.4% |
| Sub-total | | 302 769 | 3.2% |
| Agro-processing | Meat Processing | 58561 | 0.6% |
| | Fruit &Vege Processing | 60728 | 0.7% |
| | Dairy | 36943 | 0.4% |
| | Grain & Sugar Processing | 226529 | 2.4% |
| | Beverages & Tobacco | 151838 | 1.7% |
| | Sub-total | | 534 599 |
| Retail | Food Retail | 956191 | 10.1% |

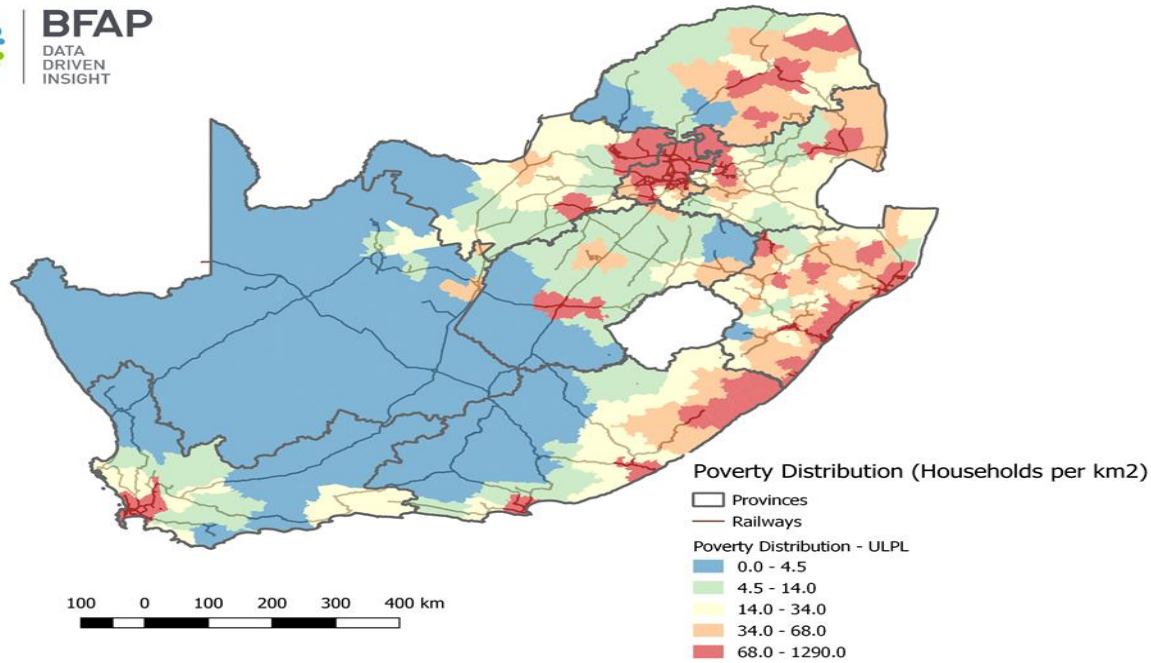


NDP focus of agriculture contribution to Poverty 'hot-spots'

Poverty distribution:



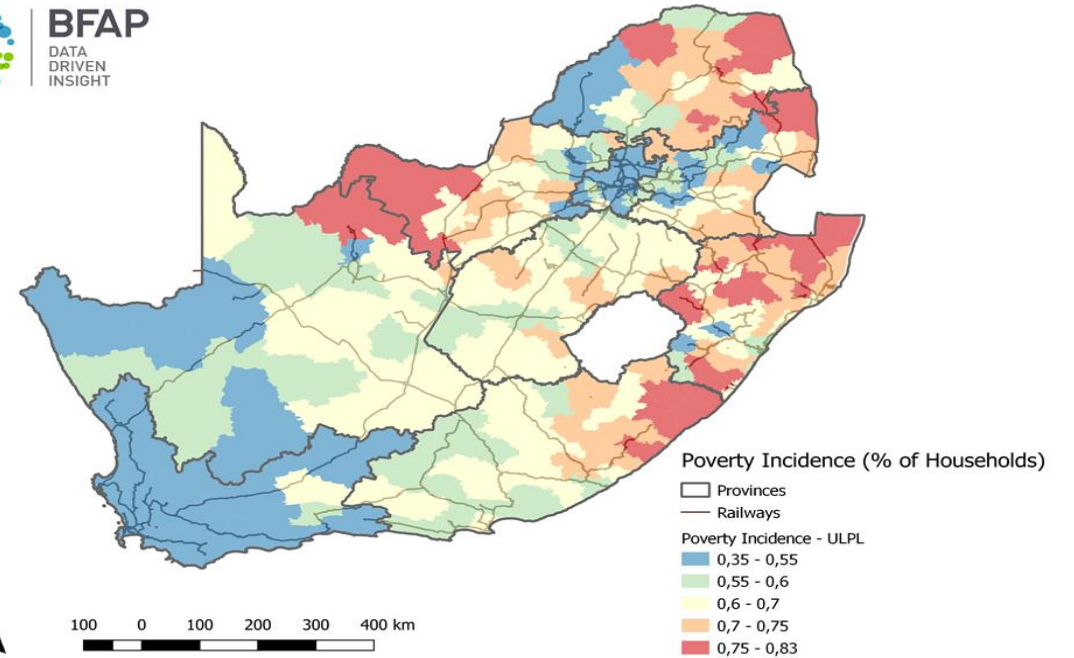
BFAP
DATA
DRIVEN
INSIGHT



Poverty incidence:



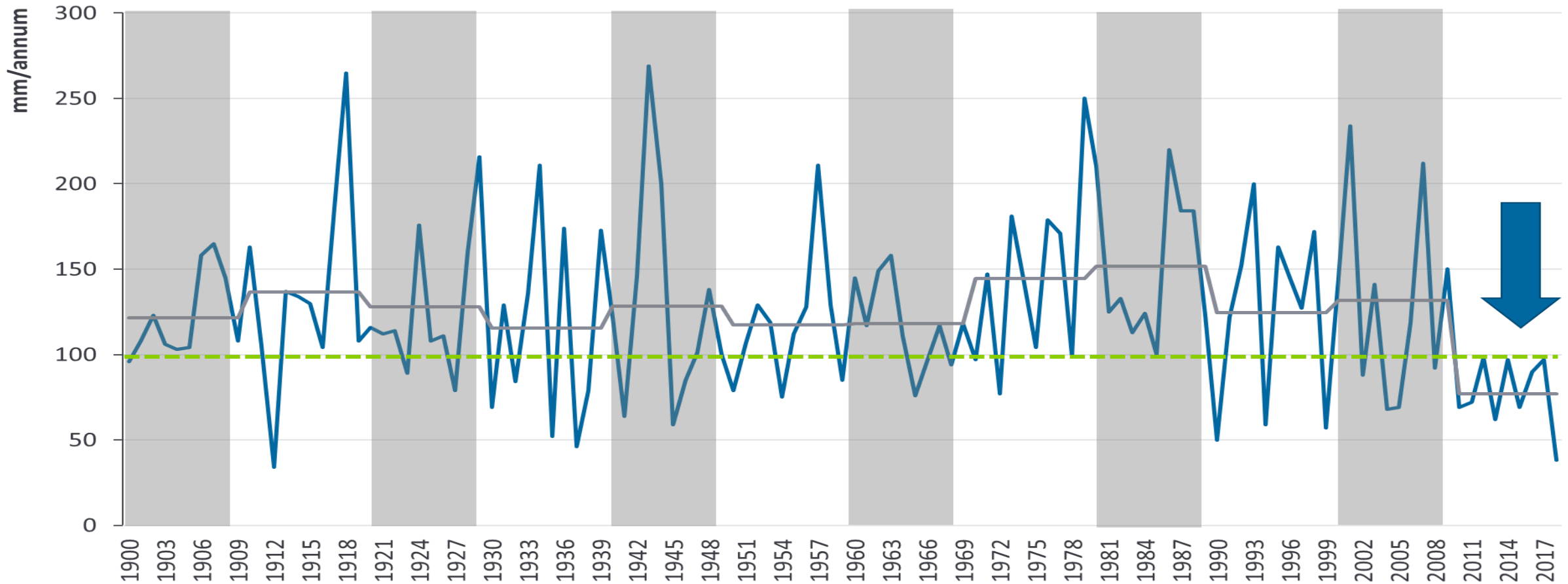
BFAP
DATA
DRIVEN
INSIGHT



- By 2030, severe effects due to changes in temperature anticipated to lead to *reduced crop yield in many areas, increased incidences of pests and disease outbreaks,*
- Moreover, the effects are also felt through increases in irrigation demand.
- The highlighted effects that directly affect agricultural productivity also impact on the socio-economic factors of the various actors within the agricultural sector.



Climate Change is a real treat: *Critical implication for R&D and Insurance*



Source: BFAP, 2020

- *The highlighted effects that directly affect agricultural productivity also impact on the socio-economic factors of the various actors within the agricultural sector.*
- *In the short-term, climate change presents a high risk of compromising South Africa's food security status due to the negative impact on crop productivity (Wheeler & Braun, 2013).*



South Africa Challenges around Climate Change



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- Climate change is a major threat to agricultural development in South Africa. During 2016/17 financial year the country experienced severe drought which led to reduced agricultural production.
- Climate resilience is currently not fully integrated in policy pathways to economic growth and where it is integrated is not being implemented adequately and in coordination.
- Financial investment in climate change is not enough for the necessary action that needs to be taken.
- Climate change modeller experts are few and not working in a coordinated manner – much needed skills development.
- NDP – Chapter 5 transition to a low-carbon economy





In-country on-going initiatives



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- ✓ In order for South Africa to meet her Nationally Determined Contribution (NDC) targets – trajectory range: **398 – 614MtCO₂e over the period 2025 – 2030**, GHG emission reduction targets, the country **enacted Carbon Tax Policy in 2015** but the agricultural sector was left out due to the complex process entailed in GHG quantification, among other factors.
- ✓ Despite the challenges, the **NAMC**, **Land Bank** and the **ARC** have embarked on a project aiming at quantifying GHG emissions within the sector (*starting with the emerging & smallholder farmers*). The project builds on other ongoing GHG quantification activities undertaken by the Confronting Climate Change (CCC) Initiative (managed by Blue North Sustainability).
- ✓ In brief, the overall objective of the project is get a baseline of how much GHG emissions are generated within the agricultural sector.
- ✓ Insights from study findings are anticipated to lay a foundation upon which informed policy decisions and appropriate adaptation as well as mitigation measures could be made for the benefit of the sector.





CSA Strategic Framework



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Climate Smart Agriculture Strategic Framework: The vision is for a socially inclusive, climate resilient and sustainable Agriculture, Forestry and Fisheries (AFF) sectors attaining high productivity for national food and nutrition security through climate-smart agricultural practices. Outputs of the Framework:

- 1) An enabling and coordinated Policy Environment.
- 2) Strong Climate Smart Agriculture, Forestry and Fisheries sector anchored by coordinated, capacitates institutions and partnerships.
- 3) Increased investment in research and expanded CSA knowledge.
- 4) Resource efficient and efficient resilient value – chain based on technology innovation.
- 5) A CSA Advocacy and Communication strategy that enhances the understanding of CSA, builds consensus on issues and stimulates stakeholders action.
- 6) A diverse funding base to build a climate resilient investment programme.
- 7) An incentivized and driven CSA systems characterized by strong stakeholder commitment.



Agricultural and Food-system Resilience: Increasing Capacity and Advising Policy

Aim

To build capacities for the identification and implementation of evidence-based policy pathways towards climate smart agri-food systems

Objectives

To characterize contexts and build evidence baselines

To use scenarios as a tool for cross-stakeholder and interdisciplinary learning about system priorities

To explore the long-term SDG compliance of pathways of change

To build policy and practice capacity for translating evidence into pathways of change

To build capacities, the knowledge communities, tools and infrastructures required for addressing interdisciplinary knowledge gaps and manage research

Evidence-based policy pathways will be developed using our Integrated Assessment Framework





GCRF - AFRICAP Working through Partnerships

African Partners



UK Partners



UNIVERSITY OF LEEDS



UNIVERSITY OF ABERDEEN



Met Office

CHATHAM HOUSE

The Royal Institute of International Affairs

Funder





Agricultural and Food-system Resilience: Increasing Capacity and Advising Policy

Assessing the extent, the reasons and the consequences of maize food deterioration and contamination

Analysing the relationship between maize varieties, cropping systems, root architecture, and mycorrhizal fungi

Evaluating the social and political dimensions of CSA intervention

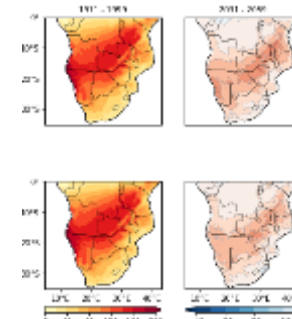
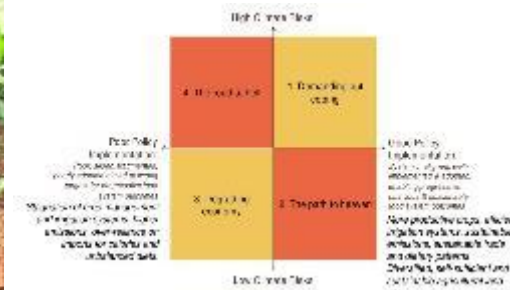
Modelling impacts of future climates and land use change on crop production

Projecting future climate extremes and testing the skill of climate models for Africa

Evaluating the climate resilience of seed systems

Analyse the social and ecological impacts of investments in soybean production

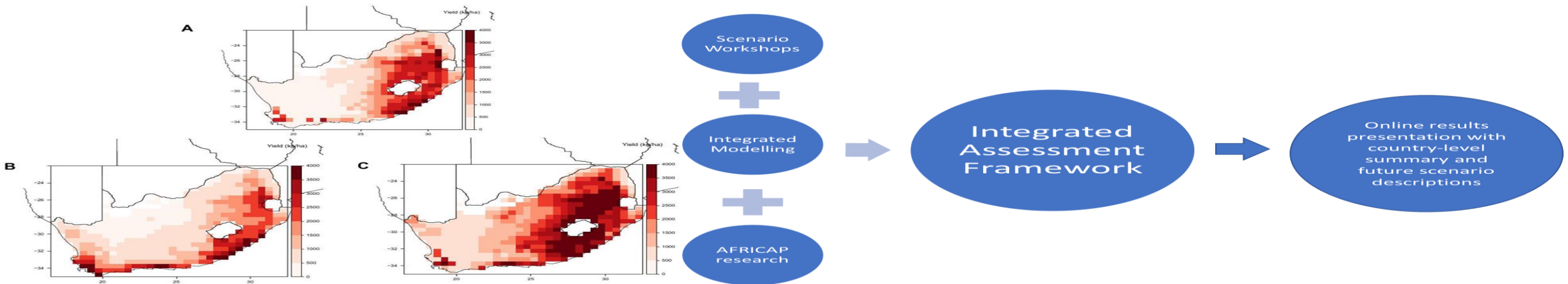
Evaluating the biophysical and social dynamics of conservation agriculture





Current Climate Modelling work

- The Integrated Assessment Framework (IAF) is being used to assess how food secure and climate smart possible future scenarios will be in South Africa. These different possible futures are defined by the scenarios outlined in the participatory scenario workshop.



- Results from IAF will be presented using an online user-interface tool, allowing the user to firstly explore country-level outcomes and secondly to explore in detail the implications of the various scenarios modelled. Our comprehensive, integrative approach can generate the evidence needed to aid decision making today and in the future.
- Policymakers will be able to use our findings to answer key questions, including: Which crops should be grown, and in what way? How resilient will yields be? How will this choice affect land use, food supply, and nutritional outcomes? How does this choice affect long-term sustainability?



Areas of assistance from Koronivia Joint Work on Agriculture

- ✓ Availing resources to finance and to use current and new technologies and practices, especially targeted towards small scale/ small holder farmers, will become important instruments of adaptation.
- ✓ Strengthen research, technology, development and transfer for the development of new technologies.
- ✓ Development of effective EWS and contingency plans (climate information and services) and Support for agriculture insurance systems.
- ✓ Adaptation in agriculture will require an integrated approach that addresses multiple stressors, and will have to combine the indigenous knowledge / experiences of vulnerable groups together with latest specialist insights from the scientific community.
- ✓ Capacity building to identify, and explore technologies for adaptation including indigenous technologies and technological assistance on risk zoning/ mapping, modelling and design.
- ✓ Enhancing climate information and services for climate change impact studies downscaling seasonal forecast consideration particularly at national and regional scale





Concluding Remarks



- ✓ AFRICAP's modelling framework can be used to assess how food and nutrition security will be impacted by climate change.
- ✓ This tool can be used to make decisions for a climate smart and food and nutrition-secure food system in South Africa.
- ✓ Private Public Partnerships in research for the development of drought resilient cultivars.
- ✓ The need for the development of early warning system, for drought.
- ✓ There is need to build the resilience of the agriculture sector to the effects of climate change in the context of current and future climate uncertainties.
- ✓ Successful development of the food system in South Africa requires coordinated thinking about the domestic and international impacts of climate change to the food system



NGIYATHOKOZA

DANKIE KE A LEBOGA

NGIYABONGA

NDIYABULELA

INKOMU NDI KHOU
LIVHUHA

Thank you