JustTransitions

FACT SHEET 04

Impacts of climate change on South African agriculture and the food system

Introduction

Agriculture in South Africa is very vulnerable to climate change. It also contributes to climate change through emissions. But agriculture can also contribute to the solutions. It can become a sink if agroecological practices are adopted.

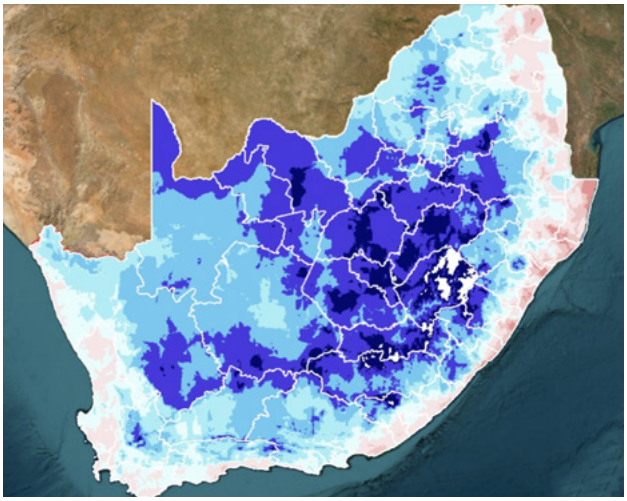
Impacts indicated in this fact sheet are projections for the whole country. But the felt impacts will vary depending on the exact location, and if farmers are large or small-scale, producing crops or livestock, using irrigation or not, and farming in productive or marginal areas. Participatory local level analysis and action is therefore essential.

Climate change expectations for South Africa

Taking all factors into account, the coastal areas and inland along the eastern border of Mpumalanga and Limpopo are most vulnerable to climate change. Inland areas, especially the Highveld, are projected to be less vulnerable (Figure 1).

Conditions will be generally drier in the west and north, and slightly wetter in the east. Water quality and availability will decline. Rainfall will become increasingly variable from year-to-year.

Figure 1: Composite vulnerability map for South Africa



Source: ArcGIS[1]

1. https://gisportal.saeon.ac.za/portal/apps/webappviewer/index.html?id=2d572dcf9c5f47c484540f8c934e03f4

It will get hotter, at twice the global average. Temperatures will increase by up to 3.5°C over the next 40 years.

There will be an increase in extreme weather events such as heatwaves, droughts and floods.

Adverse environmental impacts include soil erosion, deforestation, recurrent droughts, desertification, land degradation, and the loss of biodiversity.

Livestock production will face more bush encroachment and invasive alien species in rangelands, new pests and pathogens, heat stress, and livestock water requirements.

Grassland degradation is a key concern because grasslands provide important economic and non-economic functions.

- Economic – grazing for animals, meat, fuelwood, medicinal plants, and grass for thatching
- Non-economic – cultural, spiritual heritage, and tourism and recreation

Grasslands are also very important for the environment. Along with forests, they are the biggest carbon sink in the country. Both biomes are also very high in biodiversity. They also provide key ecosystem services, such as watershed protection, soil stabilisation, and regulation of nutrient cycles. They also have value in their own right, as places to be looked after.

Crops

Climate change will affect different crops in different ways. Maize and wheat yields will come under pressure from temperature rises and less water availability. There will be shifts in suitable production areas for many crops including maize, wheat, soya, sorghum, sugarcane, fruit and vegetables, and tree plantations. Overall, production is expected to become more concentrated, with smaller areas of production under irrigation with higher yields.

Implications

Water scarcity will lead to an increased demand for irrigation. Water storage will become more important, especially in areas with lower rainfall. Dams may be needed, but these have negative impacts, including displacement of communities, disruption of water cycles and ecosystems, and reduced water availability for those living downstream.

Adaptation via agroecological practices will be required, for example, water harvesting and recycling, heat/drought tolerant and short cycle crops, changing tillage practices to conserve water in the soil, and wetland conservation.

Rural communities could face displacement if commercial agriculture changes location of production, unless this is properly managed.

Smallholder and homestead farmers are most vulnerable to climate change impacts. Large scale commercial farmers are more able to adapt their practices, due to greater resources and information.

Women, children and the elderly are at greatest risk.

Farm workers are already experiencing job losses and more precarious conditions during and after droughts.

Impacts on workers in the value chain will depend on which sector they are in. Retail employment is not likely to decline, but manufacturing and transport workers may be negatively affected in sectors that shrink.

Expansion of large-scale agriculture, and tree and sugarcane plantations can result in land grabbing, biodiversity loss and greenhouse gas emissions if grasslands or forests are converted to production.

Impacts on human health are likely to be negative, with anticipated waterborne diseases after floods, expanded areas affected by tropical diseases such as malaria, heat stress including for farm workers, food and nutrition insecurity, and the destruction of physical health infrastructure.

Food prices will rise as consumers bear the costs of climate uncertainty and lower production, and as other wealthier markets compete to buy scarcer commodity crops.

What can be **done?**

Overall, with a business-as-usual response, climate change is likely to intensify inequality in ownership, productive activity and the risks that marginalised and vulnerable communities and women carry. But this is only if responses are left to the market and to individual decisions alone.

A clearly defined and just transition is required to alter the character of the food system, and to bring the interests of these disadvantaged communities to the centre of interventions.

Key elements of a just transition include:

- Prioritising the rights to nutritious and clean food and water
- Rapid redistribution of resources, including land and water
- Agroecological practices to conserve and restore soil, water and biodiversity in food production
- Build resilience and capacity to adapt
- Integration of agricultural production into wider participatory, multi-actor natural resource and landscape management and planning
- Universal basic income grant and public employment programmes to support the marginalised and vulnerable to build and strengthen livelihoods and nurture the environment
- Targets for reduction of emissions, especially in the commercial food system, with defined measures and timeframes for this. The most important areas for attention are the livestock sector, energy and transport in the food system, and land use change (especially conversion of grasslands and forests to agricultural production).