



TRADE & INDUSTRIAL POLICY STRATEGIES

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NATIONAL EMPLOYMENT VULNERABILITY ASSESSMENT

AGRICULTURAL VALUE CHAIN

September 2025



ABOUT THIS REPORT

The impact of climate change and the decisions taken to reduce emissions will have an impact on workers and communities in multiple value-chains. TIPS, with funding from the UK-PACT Programme has undertaken research on five key value chains that will be impacted: coal, petroleum-based transport, tourism, metals, and agriculture.

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ABBREVIATIONS

BFAP	Bureau for Food and Agricultural Policy
CBAM	Carbon Border Adjustment Mechanism
CO ₂ e	Carbon Dioxide Equivalent
DFFE	Department of Forestry, Fisheries and the Environment
DRF	Disaster Risk Finance
EU	European Union
GHG	Greenhouse Gas
GVA	Gross Value Added
N ₂ O	Nitrous Oxide
NMW	National Minimum Wage
PCUs	Positive Chill Units
SETs	Sectoral Emissions Targets
SIC	Standard Industrial Classification
UIF	Unemployment Insurance Fund

1. INTRODUCTION

The agricultural value chain in South Africa is both highly exposed to climate change and deeply unequal. On the one end of the chain, the country has a strong agro-industrial sector, with some of the most productive farms and processing plants globally. On the other end, the sector relies on a poorly paid and immobile farm labour force with limited assets.

The impacts of the climate crisis, and the capacity to adapt, vary sharply across this value chain. Workers, emerging farmers, small businesses, and the communities within the formal agro-industrial sector face different risks and adjustment challenges compared to households in the former homelands or historic labour-sending regions. Vulnerability also differs across subsectors, with horticulture, field crops, and livestock each facing distinct climate-related pressures.

This report examines how vulnerable communities, workers, and businesses are able respond to climate impacts. It draws on literature that frames vulnerability in terms of financial resources (income and savings); physical assets (housing and productive resources); human capital (education and skills); and social capital (networks in workplaces and communities). Control over these resources continues to reflect entrenched inequalities of class, race, and gender, shaping both exposure to climate risks and the capacity to build resilience.

2. TRENDS IN AGRICULTURAL PRODUCTION

This section will provide a brief outline of the agricultural value chain in South Africa, focusing on key trends such as the structure of the sector, production, exports and employment.

2.1. Structure and ownership

South Africa's agricultural sector is a central part of the national economy and a key contributor to food security and development. It comprises three main branches: **horticulture**, **livestock**, and **field crops**. The country has approximately 113 million hectares of agricultural land, covering 93% of its total land area. Of this, 86% consists of permanent meadows, pastures, or rangeland, while 11% (about 12 million hectares) is arable. Only 1.6 million hectares are irrigated (WOW, 2025, p.12).

South Africa's diverse geography, ranging from the arid Karoo to the Mediterranean west and subtropical east, enables a wide variety of agricultural production suited to different regions (WOW, 2025). However, the sector remains shaped by apartheid-era inequalities. Agricultural production and value chains are divided between a globally competitive agro-industrial sector and marginalised smallholder producers in the historic labour-sending regions (Makgetla et al., 2019, p.94). Market concentration also persists in production, processing and retail, limiting entry for smallholder and new farmers (WOW, 2025, p.72).

2.2. Scope of the agricultural value chain

South Africa's agricultural structure features three main branches (livestock, horticulture, and field crops), that face similar climate threats but vary in economic contribution and vulnerability. This section examines these three branches within the agricultural value chain.

Horticulture employs the largest share of the workforce (40% in 2023), followed by mixed farming. A substantial portion of this labour is seasonal, particularly in horticulture, where nearly half of workers are on temporary contracts. Despite employing the fewest people, livestock farming

generated a significant portion of the industry's income (nearly 40% in 2023) (Stats SA, 2023, p.17; WOW, 2025, p.25).

The agricultural sector's diverse products face distinct climate risks. Frequent droughts (e.g., 2015–2016, 2017–2018, 2023–2024) and infrastructure challenges have severely impacted output, which contracted 12% in 2023. The summer grain and oilseed harvest fell 23% year-on-year by the end of the 2023/24 season (Agbiz, 2024). Although food retail employment is expected to remain stable, climate events threaten agro-processing. Droughts and extreme weather can limit agricultural supply, forcing processors to scale back operations and jeopardising jobs. Firms may respond by adopting new technologies, potentially reducing demand for certain skills. While commercial farmers can invest in climate-smart technology, most smallholders in provinces like KwaZulu-Natal and Limpopo lack access to these adaptations, leaving them highly exposed to climate shocks due to low incomes and weak institutional support.

2.2.1. Livestock value chain

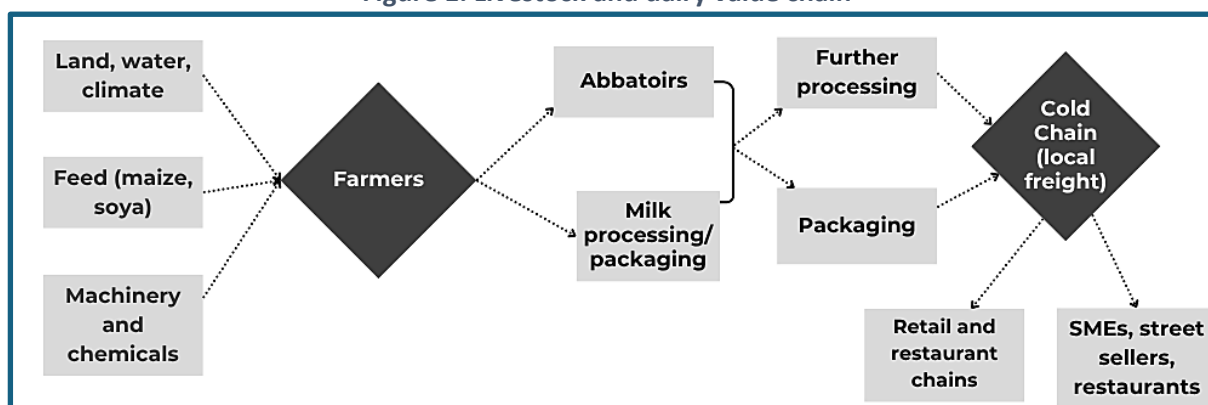
The livestock value chain (Figure 1) is South Africa's largest agricultural subsector in sales. Its potential has been demonstrated over the past decade through substantial investments in intensive poultry, egg, and pork operations, alongside the beef industry's transition from net importer to net exporter. The notable success of wool exports, particularly through comprehensive support for smallholder communal farmers supplying international markets, further underscores this opportunity. However, future growth remains precarious. The current system's inability to adequately manage disease outbreaks continues to undermine productivity and restrict market access (BFAP, 2025, pp.9-10).

Cattle farming in South Africa is widespread but concentrated in the Eastern Cape, KwaZulu-Natal, Free State, and North West. Herd sizes vary; dairy operations are typically small (under 50-300 head), while beef farms range from under 200 to over 4000 head in feedlots. These feedlots, concentrated in North West and Gauteng, produce roughly 75% of national beef. The national herd totalled 12 million in August 2024 (80% beef, 20% dairy) (DALRRD, 2024, p.66).

Poultry is South Africa's largest agricultural subsector and the primary protein source for many South Africans. Broilers (78%) and eggs (22%) constitute over 93% of its output, with per capita consumption nearing 50 kg in 2023. Since 2008, demand has been met largely by a 180% surge in low-cost imports, primarily bone-in cuts from the Americas and the European Union (EU) (DALRRD, 2024, p.72). This import dependence and liberalised maize exports tether local feed prices to global maize and soya markets, often forcing domestic broiler prices above import parity. The egg sector faces less import pressure but is challenged by disease outbreaks, rising costs, weak demand, and failing infrastructure (SAPA, 2023, p.27).

Production systems also affect climate exposure, with pigs and poultry mainly raised in confined operations, while other livestock often graze. Cattle for formal markets typically spend half their lives in feedlots on maize- and soya-based rations. Beyond the farm, the value chain is highly concentrated. A few large firms dominate feedlots, abattoirs, processors, and retailers. Most formal poultry producers operate under contract with vertically integrated companies that control inputs and buy all output (Makgetla et al., 2019, p.96).

Figure 1. Livestock and dairy value chain



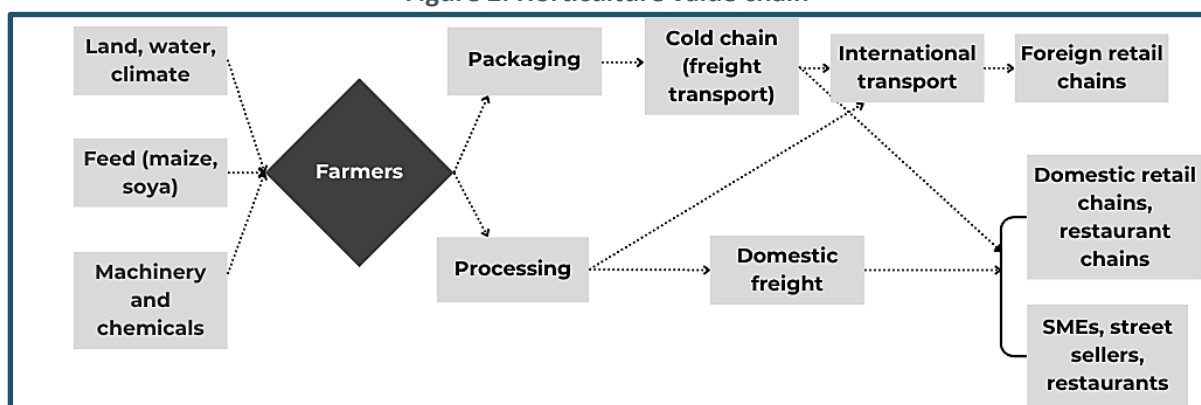
Source: Adapted from Makgetla et al., 2019.

2.2.2. Horticulture value chain

The horticultural value chain (Figure 2) deals with the growing, processing and marketing of fruits, vegetables, nuts and ornamental plants, and its role in South Africa's agricultural sector has increased over time, particularly its contribution to country's agriculture exports. It is notable for its significant export orientation, particularly in key products such as wine and deciduous fruits, including peaches and apples. In addition, fruit and vegetables are also key forms of agricultural activities in former labour-sending region households. In the fruit and vegetable industry, deciduous fruits and citrus are the largest contributors by production value. Between 2003 and 2022, the value of deciduous fruits rose from R12.7 billion to R31.1 billion, more than doubling, while citrus increased from R7.3 billion to R26 billion, more than tripling over the same period (Chigumira, 2024, p.5). Deciduous fruit production in South Africa is concentrated in the Western Cape and Eastern Cape, areas characterised by warm, dry summers and cold winters, which provide suitable agro-climatic conditions for these crops.

The horticulture sector has also expanded its high-value export fruit and nut cultivation by approximately 120 000 hectares over the past decade. The Bureau for Food and Agricultural Policy (BFAP) projects export volumes could increase by a further 25% by 2034. In the short term (2025-2027), the strongest growth is expected in soft citrus (24%) and blueberries (19%). Looking further ahead to 2034, soft citrus exports are projected to increase by over 55%, with blueberries seeing nearly 70% growth. The processing segment is also expanding, particularly for oranges and mandarins, indicating broader opportunities across the fruit value chain (BFAP, 2025, p.83).

Figure 2. Horticulture value chain



Source: Adapted from Makgetla et al., 2019.

2.2.3. Field crops value chain

South Africa's field crops value chain (Figure 3) is dominated by maize, wheat, and soya. As of 2024, white maize accounts for roughly 48% of total production and is mainly consumed as food, while yellow maize makes up the remaining 52% and is predominantly used for animal feed (DALRRD, 2024). These crops are largely processed and consumed domestically and do not require cold chain distribution. Evidence suggests, however, that storage firms – many emerging from the privatisation of previously state-supported white farmer cooperatives – hold considerable market power, often driving up buyer prices (Makgetla et al., 2019, p. 100).

White maize is primarily cultivated in the western maize belt, while yellow maize dominates eastern growing areas. Key grain-producing regions include the central and northern Free State, central and eastern North West, and much of Mpumalanga. Additional areas encompass parts of the Western Cape (mainly wheat), along with smaller coastal zones in the Eastern Cape and southwestern Limpopo (WOW, 2023a, p.6). In 2024, the Free State, Mpumalanga, and North West provinces collectively produced nearly 90% of the country's white maize, while the Free State and Mpumalanga accounted for about two-thirds of the yellow maize harvest (DALRRD, 2024, p.10).

South Africa's commercial field crop farmers are, however, likely to see their profits shrink in the coming years. Unless new opportunities open in animal feed or export markets, production is expected to stay fairly flat. This is especially tough for new Black farmers trying to establish themselves in the sector. Many farms transferred through land reform – which could have been thriving businesses – now lie unproductive. This is mainly because the new owners have not received enough ongoing support, training, or access to financing (BFAP, 2025, p.10).

Figure 3. The field crops value chain



Source: Adapted from Makgetla et al., 2019.

3. TRENDS IN PRODUCTION

Agriculture contributes nearly half of the agro-industry's Gross Value Added (GVA), its value growing from approximately R83 million in 2000 to R185 million in 2024 (constant Rand terms). Food processing¹, one of the fastest-growing segments, expanded from R41 million to R132 million, with accelerated growth after 2010. Beverages, the smallest sector, increased steadily from R43 million to R64 million (Graph 1). Despite a severe El Niño-induced drought in 2018/2019 that disrupted planting

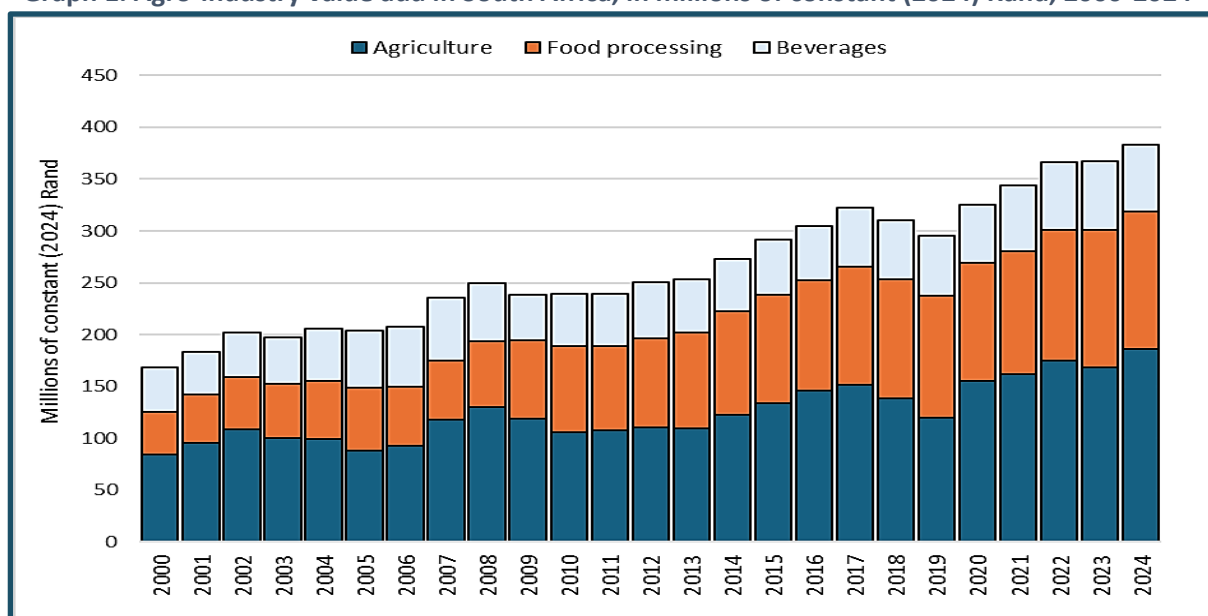
¹ According to the Standard Industrial Classification (SIC), food processing refers to establishments primarily engaged in manufacturing or processing foods and beverages for human consumption, including products such as dairy, bakery goods, meat, and confectionery.

and reduced output, total agricultural income rose 10% from R450 billion to R494 billion by 2022/2023, driven by animal products and field crops (Stats SA, 2023).

The geographic distribution of the agro-industry production is concentrated in the Western Cape and KwaZulu-Natal followed by the Free State, Mpumalanga and Limpopo. In 2024, the Western Cape and KwaZulu-Natal together contributed 42% of agriculture's total value added (based on Quantec data). Agriculture contributes a disproportionately high share of provincial value added in the western parts of South Africa, notably in KwaZulu-Natal. In the North West and Limpopo, while agriculture remains a key economic activity, food processing is far less prominent. In many municipalities within these provinces, farming dominates the local economy, with only occasional clusters of processing plants (Makgetla et al., 2019, p.102).

Food processing remains heavily concentrated in Gauteng, which accounted for 30% of the sector's value added in 2023. Along with KwaZulu-Natal and the Western Cape, these three provinces have been the main contributors for the past five years. This concentration is a legacy of apartheid-era policies that favoured urban centres like Gauteng through state interventions, such as marketing boards, cooperatives, and a national pricing system which removed incentives to locate processing plants near agricultural production areas (Hector, 2025, p.8).

Graph 1. Agro-industry value add in South Africa, in millions of constant (2024) Rand, 2000-2024



Source: Calculated from Quantec, EasyData. Series on SA Standardised Industry Input Structure at basic prices. June 2025. Deflated using CPI.

4. DIMENSIONS OF CLIMATE CHANGE-RELATED IMPACTS

This section unpacks the climate change-related impacts on the agricultural sector in South Africa.

Climate change impacts on South Africa's agricultural sector will manifest differently across the agro-industrial value chain. Primary agriculture faces the most immediate effects, driven predominantly by reduced water availability and rising temperatures. Downstream segments, food processing and retail, will primarily experience supply disruptions and higher input costs, ultimately translating to increased consumer prices. Emission reduction measures are also expected to raise costs for bulk transport and refrigerated logistics throughout the value chain (Makgetla et al., 2019, p.106).

Significant distinctions do, however, exist between the horticulture, field crop, and livestock subsectors, including their geographic distribution, primary markets, inputs, and production systems. Consequently, both the impacts of climate change and appropriate adaptation strategies will vary substantially across these branches.

4.1. Direct impacts

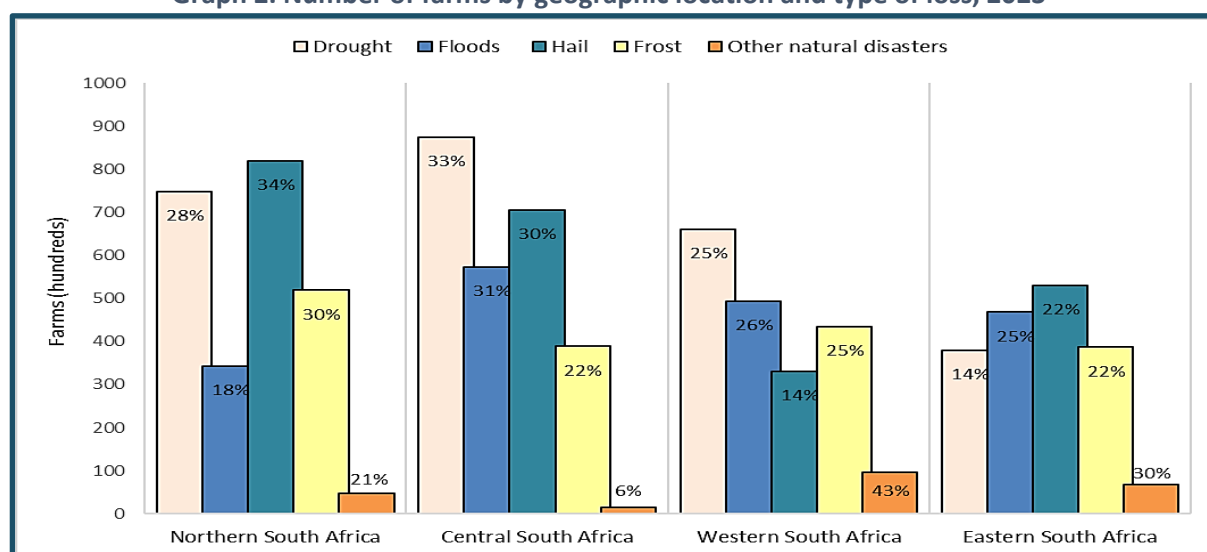
Climate change is exerting direct pressure on South Africa's agricultural value chain, threatening national food security through rising temperatures, shifting weather patterns, and more frequent extreme events.

The Department of Forestry, Fisheries and the Environment (DFFE) identifies drought as the most critical climate threat, causing widespread water shortages, heightening food insecurity, and eroding agricultural capacity. South Africa's climate oscillates between wetter La Niña and drier El Niño periods. The severe 2014/2015 drought devastated maize production and, while the number of farms reporting drought damage fell to 2600 in 2023 (from 5800 in 2017), flood-related losses have risen (DFFE, 2021; Stats SA, 2023, p.45). Geographically, the Northern, Central, and Western regions were most affected by drought. At a provincial level, the Free State (23% of farms reporting losses), Western Cape (17%), and Mpumalanga (13%) were hardest hit. Losses from hail were more prevalent in the Central and Northern regions (Graph 2).

These climate impacts disproportionately affect small, rural municipalities, which lack the financial capacity to rebuild critical infrastructure (e.g., roads, water supply) after climate disasters (National Treasury and World Bank Group, 2025, p.7). This vulnerability severely affects farmworkers and smallholders, particularly in historic labour-sending regions like Limpopo, Mpumalanga, and the North West, where job losses and heightened insecurity are widespread.

Furthermore, a key disparity exists in adaptive capacity. Commercial farmers are able to invest in irrigation and premium climate forecasts to manage risk. In contrast, smallholders, an important part of the sector, often lack secure land tenure, institutional support, and access to the localised climate information needed for decision-making, leaving them highly exposed (Myataza, Forthcoming). This inequality limits the agricultural sector's overall resilience to intensifying climate stresses.

Graph 2. Number of farms by geographic location and type of loss, 2023



Source: Agricultural industry: Financial and production statistics, 2023. Downloaded at www.statssa.gov.za in July 2025.

Note: Northern South Africa (North West, Mpumalanga, Limpopo), Central South Africa (Free State, Gauteng), Western South Africa (Western Cape, Northern Cape), Eastern South Africa (Eastern Cape, KwaZulu-Natal)

Climate change impacts will vary across South Africa's agro-climatic regions but, overall, rising temperatures and evaporation are projected to increase irrigation demands. Areas where agriculture contributes most to GVA and employment will be the most affected. Projections indicate that the West coast of the Western Cape, Northern Cape, and isolated parts of the Eastern Cape, North West, and Limpopo will be at the highest risk by 2050 (CSIR, 2019).

Horticulture is extremely sensitive to temperature and water fluctuations. Changing conditions have increased the prevalence of pests, diseases, and extreme weather events. Examples include Western Cape hailstorms (2022) damaging apple and pear crops, a Northern Cape heatwave (2023) reducing table grape yields, and severe flooding in key deciduous fruit regions causing an estimated R400-R500 million in damages (WOW, 2023b, p.12). For high-value crops like apples, which require winter chilling (measured in Positive Chill Units or PCUs), a 2°C temperature increase could reduce PCUs by 14%-60%, threatening commercially viable production in warmer areas (CSIR, 2019).

Field crops are also very vulnerable, with recurring droughts intensifying. The 2023/2024 summer crop yields were reduced, and the 2024/2025 wheat, sunflower, soya, and maize production was negatively impacted (Talbot, 2025). Rainfed dependence makes mitigation difficult, and yields are projected to decline as temperatures rise. Higher evaporation will increase irrigation demands, straining scarce water resources (Lehutjo and Bello, 2025). Studies have shown (see: Johnston, Human and Arowolo, 2020) that shifting rainfall patterns disrupt planting schedules; delayed maize planting reduces heat units and increases frost risk; and delayed wheat sowing weakens germination. These disruptions also affect processing, storage, and market timing while increasing pest and disease pressure.

Livestock face direct health impacts from heat stress and increased disease prevalence (e.g., foot-and-mouth), as well as rising input costs. Heat stress reduces growth, reproduction and meat/wool yield, and can raise mortality. In poultry, it alters feed intake, growth rates, and egg production (CSIR, 2019). More frequent droughts and veld fires degrade grasslands, with recent below-average rainfall affecting 53% of grazing land (DALRRD, 2024, p.53). While commercial farmers can buy fodder or relocate herds, smallholders face disproportionate losses. Disease outbreaks, including avian influenza and foot-and-mouth disease, compound these challenges, though producers are adopting various mitigation strategies such as climate-controlled broiler houses for poultry (Sihlobo, 2023; African Farming, 2025).

4.2. Policy impacts

This section examines policy developments likely to affect the agricultural sector, particularly those related to fossil fuel reliance, and global policy shifts such as the EU Carbon Border Adjustment Mechanism (CBAM).

4.2.1. Climate policy impacts

Agriculture is both highly vulnerable to climate change and a major emissions source. Globally, agri-food systems contribute up to a third of human-induced greenhouse gases GHGs (Tubiello, 2022, p.1796). In South Africa, the sector accounted for 11% of national emissions (53.5 million tonnes carbon dioxide equivalent – CO₂e) in 2022 (DFFE, 2024a). Key sources include:

- Enteric fermentation (68% of agricultural emissions)
- Land-use change (e.g., deforestation)
- Manure management (emissions up 8% since 2000)

Notably, nitrous oxide (N₂O) comprised 56% of agricultural GHGs and methane 44%. Total agri-food emissions reached 50 000 kilotons CO₂e in 2022, including significant N₂O from fertilisers (FAO, 2025). Beef production has a disproportionately high footprint – cattle accounted for around 7% of South Africa’s total emissions and 70% of methane in 2020 (Wegerif, 2024). However, beef is a costly luxury product for most South African consumers, and South Africa exports little beef, poultry, or dairy (together around 1% of total exports since 2000 based on Quantec data). Instead, food exports are concentrated in fruit and nuts, milling products, and sugar confectionery. High-value fresh fruit, especially citrus, drives agro-export earnings (Hector, 2024, p.8). Commercial agriculture also depends heavily on electricity (for irrigation, cold storage, processing) and fossil fuels (diesel, agrochemicals, packaging) (Makgetla et al., 2019, p.106).

South Africa’s Carbon Tax Act No. 15 of 2019, and the Climate Change Act No. 22 of 2024 will increase regulatory pressure to reduce emissions. The Draft Carbon Budget and Mitigation Plan Regulations introduce mandatory carbon budgets for entities emitting over 30 000 tonnes CO₂e annually. These require mitigation plans and run from 2026 to 2030 (Ackermann and Young, 2025). Under the Sectoral Emissions Targets (SETs)² agriculture is identified as a high-emitting sector³ with a mandated reduction of 3.4 metric tons of CO₂e between 2025 and 2030. The Department of Agriculture must achieve this via policies such as the Conservation of Agricultural Resources Act No. 43 of 1983, the Climate Smart Agriculture Strategic Framework, and related sector plans (DFFE, 2024b, p.32). These measures may raise costs for inputs like animal feed and fertiliser.

The EU’s CBAM⁴ marks a major global policy shift. Although agriculture is initially excluded, South Africa’s agro-industry (particularly food processing) faces mounting pressure to adopt climate-responsible practices due to tightening trade standards and emissions scrutiny. This is significant as 22% of the country’s food and beverage exports went to the EU in 2023 (Hector, 2024, p.8). The sector’s high emissions and reliance on carbon-intensive inputs create indirect CBAM risks; delayed decarbonisation could raise costs and erode export competitiveness. For example, nitrogen-based fertilisers (directly covered under CBAM) are heavily relied on and imported by South African agriculture. CBAM’s farm-to-fork emissions scope, which includes transport and cold-chain logistics, could also raise the cost of agricultural exports to the EU.

The changes in climate itself and in the regulatory environment will likely lead to downsizing of some kinds of production as they become more expensive, as well as a shift in production away from the worst affected regions. The rest of this paper considers the potential impact of these processes on vulnerable groups in agriculture, specifically farmworkers and smallholders.

5. VULNERABLE GROUPS

Various methods assess vulnerability at individual, group, and community levels, often in response to crises like climate change. While most research focuses on natural disaster impacts, this analysis explores how different groups adapt to economic changes from longer-term, gradual developments.

Within the agricultural value chain, the groups most vulnerable to climate change impacts are:

- Farmworkers,
- Producers in historic labour-sending areas, and

² The draft SETs were sent out for public comment and as of May 2025 are being finalised with the DFFE.

³ Agricultural emissions have, however, lowered since the 2000s, being 9% lower in 2022 compared to the 2000s.

⁴ The EU CBAM is currently in a transitional phase and is expected to come into force in 2026.

- Isolated communities dependent on industrial-scale farming.

According to the 2019 National Employment Vulnerability Assessment (Makgetla et al., 2019, p.2), critical vulnerability dimensions at these levels include:

- **Financial resources:** Primarily earned income and savings, plus access to retirement funds, insurance, or investments.
- **Physical capital:** For workers, this includes housing, infrastructure, and sometimes vehicles. In farming areas, it extends to land, water access, and investments in livestock or crops. For businesses, it refers to equipment and buildings.
- **Human capital:** Defined as skills, education, age, and physical ability to work. For smallholder farmers, this includes the number of family members available to work the land.
- **Social capital:** This encompasses family and community networks, plus the ability to leverage rights as a worker and citizen.

Sections 5.1 and 5.2 analyses the climate change threats to the first two groups and the resources available for their adaptation.

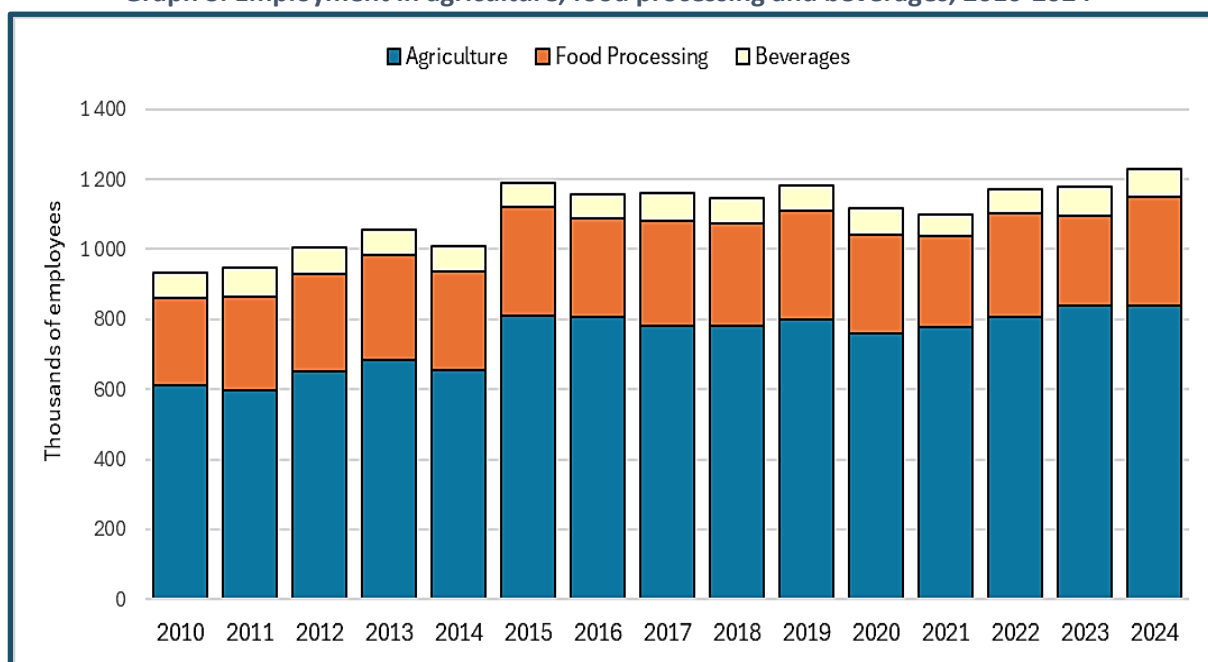
5.1. Farmworkers

Farmworkers face significant barriers to adapting to job losses. Most lack savings or assets, and their housing is often tied to employment. Educational attainment is also generally low, as many have not completed matric and few belong to unions or community organisations. Their isolation on remote farms further limits alternative employment options (Makgetla et al., 2019, p.94).

Climate change directly threatens these jobs. Droughts and rising temperatures may force farm closures or consolidation, leading to layoffs. Seasonal workers often face reduced hours or opportunities, lowering incomes. Although climate adaptations like irrigation or shade netting could sustain employment, shifts toward precision agriculture may exclude many workers due to higher skill requirements (Makgetla et al., 2019, p.95). Key provinces employing large numbers of farmworkers are especially vulnerable. The Western Cape faces worsening droughts, while KwaZulu-Natal has experienced increased flooding. The 2015-2017 Western Cape drought demonstrated the potential scale of impact: employment in horticulture, field crops, and mixed farming (accounting for 90% of farm jobs) fell by 40 000 workers (a 20% decline) (Makgetla et al., 2019, p.107).

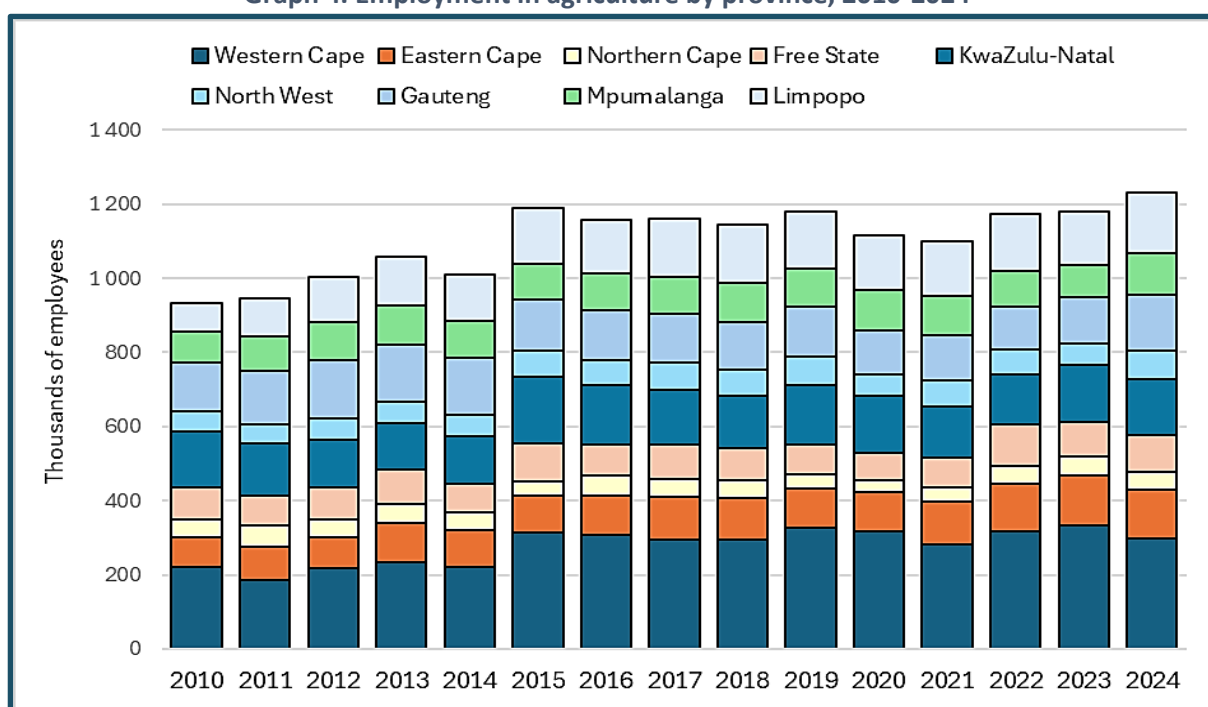
Historically, agriculture has accounted for the largest share of employment within the agro-industrial sector. In 2024, nearly 840 000 people were employed in industrial agriculture (Graph 3). Employment is heavily concentrated (Graph 4). Historic labour-sending regions also showed significant employment: Limpopo recorded over 160 000 jobs in the sector, followed by KwaZulu-Natal with 150 000. By race, African people constitute the majority of those employed in the sector, followed by coloured people. Men have historically accounted for most employment in the sector, representing over 60% of employees in 2024 (calculated from Stats SA, 2010-2025).

Graph 3. Employment in agriculture, food processing and beverages, 2010-2024



Source: Statistics South Africa. Labour Market Dynamics, 2010-2025 and Quarterly Labour Force Survey, 2010-2024. Series on agriculture industry employment. Electronic database. June 2025. Downloaded, Nesstar: www.statssa.gov.

Graph 4. Employment in agriculture by province, 2010-2024



Source: Statistics South Africa. Labour Market Dynamics, 2010-2025 and Quarterly Labour Force Survey, 2010-2024. Series on agriculture industry employment. Electronic database. June 2025. Downloaded, Nesstar: www.statssa.gov.

Job loss for farmworkers often results in immediate homelessness due to employment-tied housing. Their remote location severely limits alternative job opportunities. Systemic barriers intensify this vulnerability: secure land tenure and property ownership remain rare, off-farm housing is scarce, and on-farm accommodation standards are frequently undefined or unenforced. Unregulated farm hostels often lack basic services, and evictions pose a constant threat. Reports document intimidation

tactics by farm owners, such as cutting electricity and water. Gender discrimination also persists, with farmers reportedly avoiding hiring pregnant women and denying maternity leave (PMG, 2022).

The following sub-sections assess these vulnerabilities through the resources available to farmworkers, namely financial resources, physical assets, human capital, and social capital.

5.1.1. Financial resources

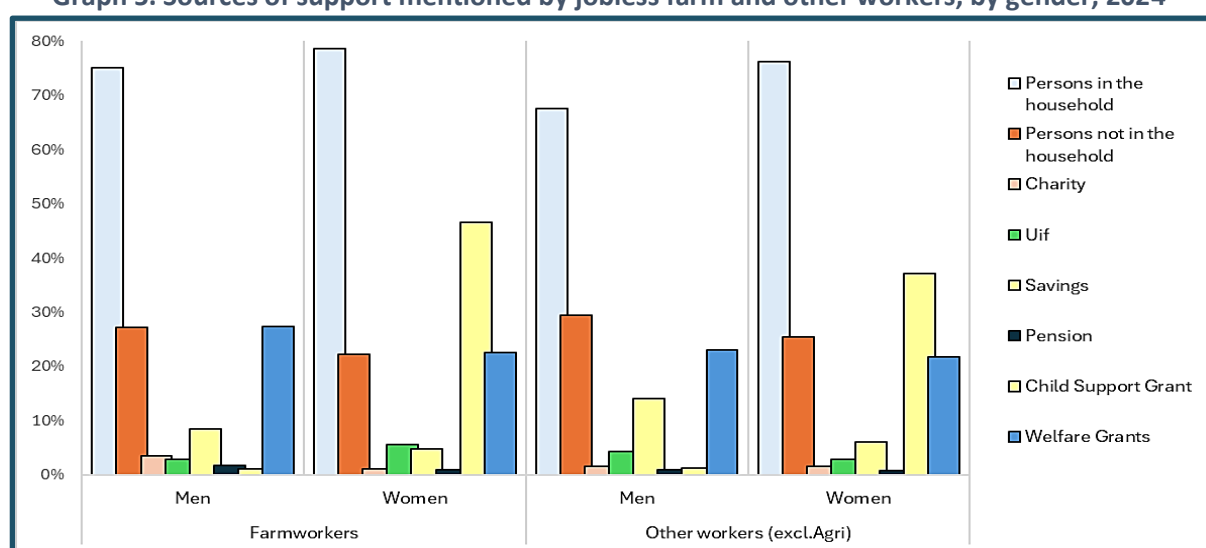
Wage determinations for farmworkers began in the early 2000s and rose steadily through the 2010s. Prior to the 2019 National Minimum Wage (NMW), sector-specific protections applied. A 2013 sectoral determination raised the agricultural minimum wage by 50% (Piek, Von Fintel and Kirsten, 2023, pp.1-3). From 2018 to 2022, the minimum wage was gradually increased to the national minimum, resulting in a 26% increase in real terms over these four years.

In 2023, median monthly earnings for farmworkers were R3400 for men and R2600 for women. By comparison, women in non-agricultural formal work earned R4500 and men R5500 (calculated from Stats SA, 2024a). In 2025, the NMW increased from R27.58 to R28.79 per hour (a 4.4% rise), also covering farmworkers. For context, the rate was R18 in 2018/19 (Makgetla et al., 2019, p.120; Du Toit, 2024).

The coping strategies of jobless farmworkers reveal a severe lack of financial assets. In 2024, about 150 000 former farmworkers were actively seeking work (52% women, 48% men), while nearly 160 000 with past agricultural work were unemployed and around 90 000 were economically inactive (calculated from Stats SA, 2024a). Among these jobless jobseekers, over 70% relied on support from household family members, around 25% on persons outside their households, and a further 25% on welfare grants. Female former farmworkers were more likely to rely on family members (79%) and child support grants (47%), while males more frequently relied on welfare grants (27%) (Graph 5).

Formal savings were rare; only 8% of unemployed men and 5% of women had any, compared to 14% of men and 6% of women in other sectors. Formal financial protection was also limited, with only 3% of men and 6% of women relying on the Unemployment Insurance Fund (UIF), and 2% of men and 1% of women using a pension fund (Graph 5).

Graph 5. Sources of support mentioned by jobless farm and other workers, by gender, 2024

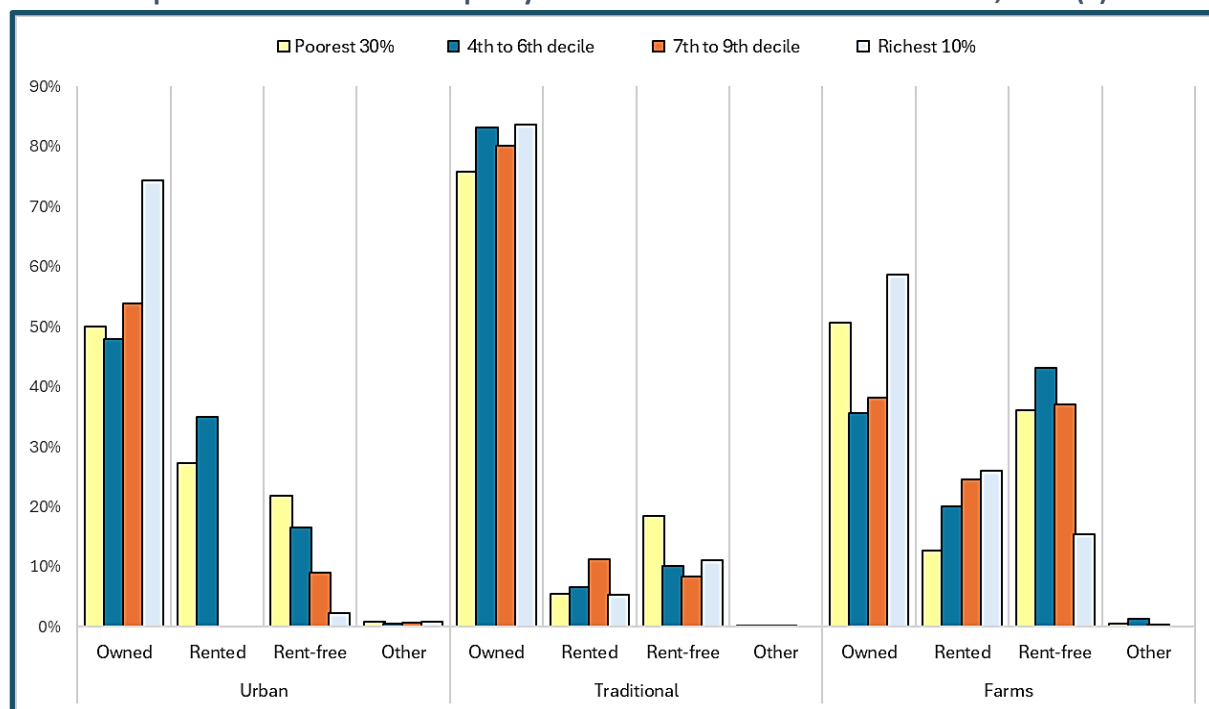


Source: Calculated from Statistics South Africa. Labour Market Dynamics, 2024. Electronic database. Series on economic activities. Database downloaded from ISibalo Data facility at www.statssa.gov.za in August 2025. Note: Respondents could give more than one answer.

5.1.2. Physical assets

For most low-income South Africans, a home is their primary physical asset, as few own land or other productive resources. Although Statistics South Africa's General Household Survey does not directly report on farmworker housing tenure, it does include data on households living on commercial farms. It is noteworthy that at every income level except the poorest 30%, fewer people living on farms owned their homes, and a higher share lived rent free. That reflects the fact that farmworkers' homes are often on commercial farms and linked to continued employment, meaning job loss could result in eviction or homelessness (Graph 6).

Graph 6. Basis for home occupancy in farmworker and urban households, 2024 (a)



Source: Calculated from Statistics South Africa. General Household Survey, 2024. Electronic database. Series on agricultural activities and household income. Database downloaded from ISibalo Data facility at www.statssa.gov.za in August 2025.

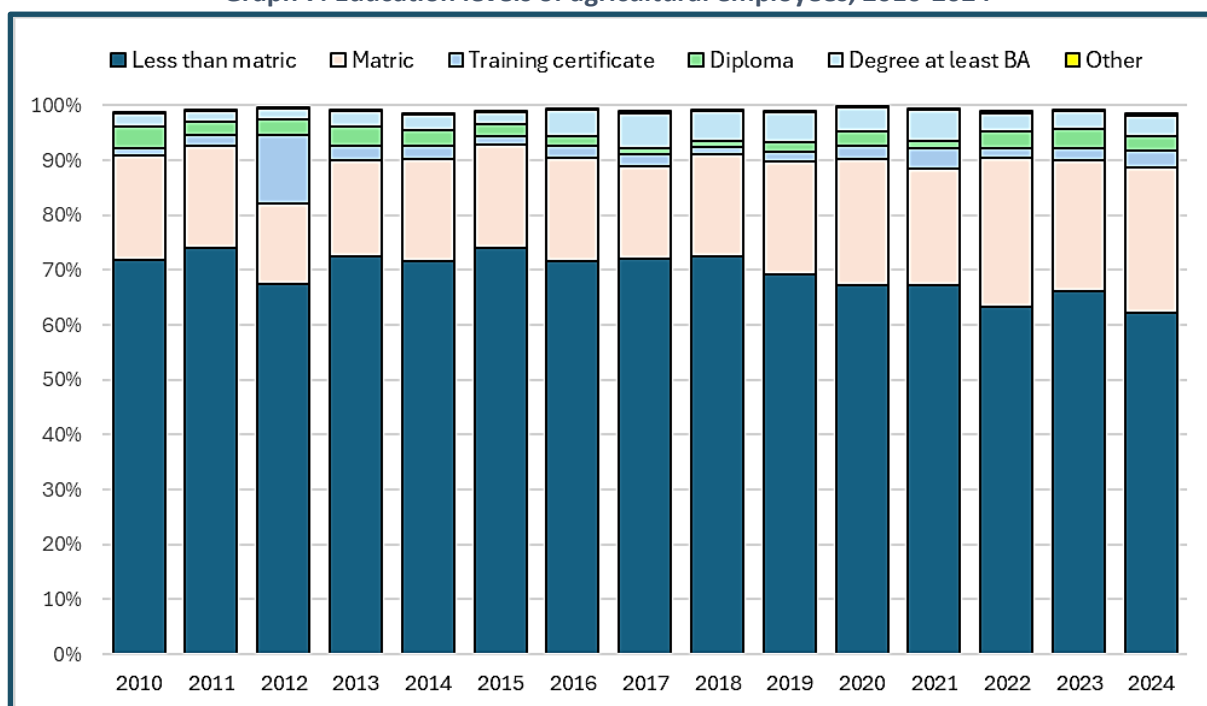
Note (a) : Households on farms are used as an approximation to farmworker households.

5.1.3. Human capital

Farmworkers have consistently had low levels of formal education. Between 2010 and 2024, most people employed in agriculture had not completed matric. In 2024, about 62% of workers in the sector had less than a matric qualification. Around 27% had matric, while only 3% held a degree and 3% held a formal training certificate (Graph 7). It should be noted, however, that education levels among agricultural employees have improved over time.

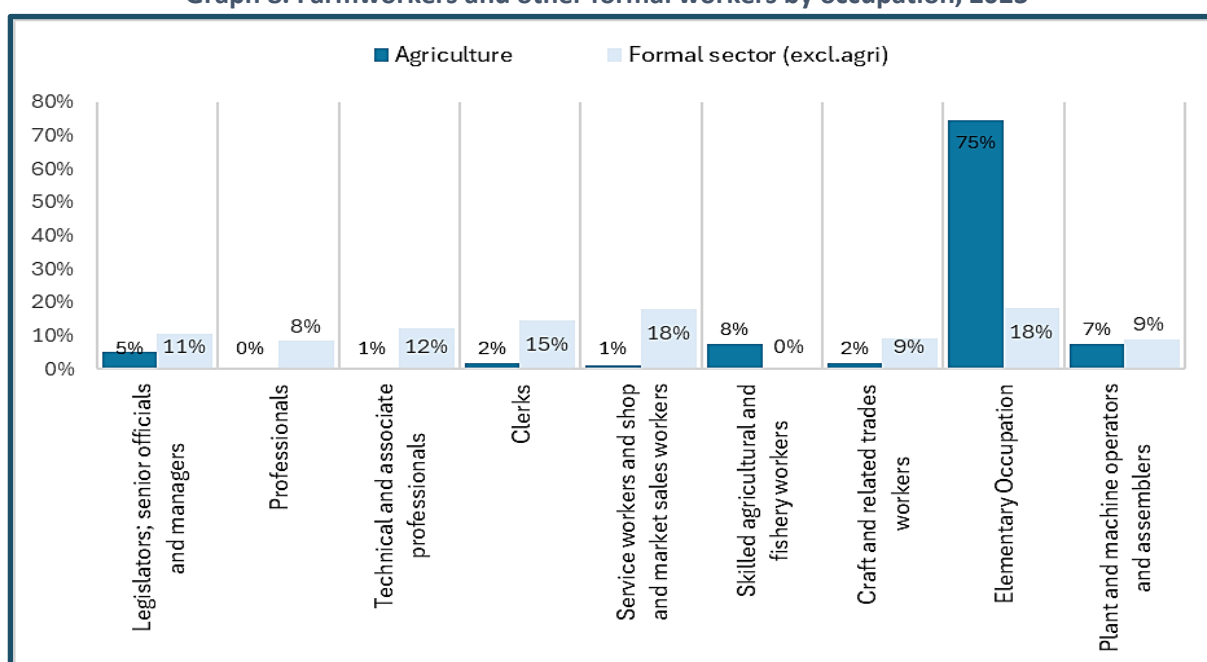
Most jobs in agriculture are classified as elementary, requiring no formal training. A far higher share of farmworkers are employed in these roles compared to workers in other formal sectors. In 2024, approximately 75% of farmworkers held elementary jobs, compared to only 18% of workers in other formal employment (Graph 8). Although these roles often involve skills gained through experience and informal on-the-job learning, such skills lack formal recognition or certification. Consequently, farmworkers face significant barriers in accessing alternative employment after job loss (Makgetla et al., 2019, p.121).

Graph 7. Education levels of agricultural employees, 2010-2024



Source: Statistics South Africa. Labour Market Dynamics, 2010-2021, Quarterly Labour Force Survey, 2022-2024.
 Series on education attainment in the agriculture industry. Electronic databases.
 Downloaded from Nesstar: www.statssa.gov.za (discontinued).

Graph 8. Farmworkers and other formal workers by occupation, 2023



Source: Calculated from Statistics South Africa. Labour Market Dynamics, 2024 Electronic database. Series on earnings for employees. Database downloaded from ISiBalo Data facility at www.statssa.gov.za in August 2025.

5.1.4. Social capital

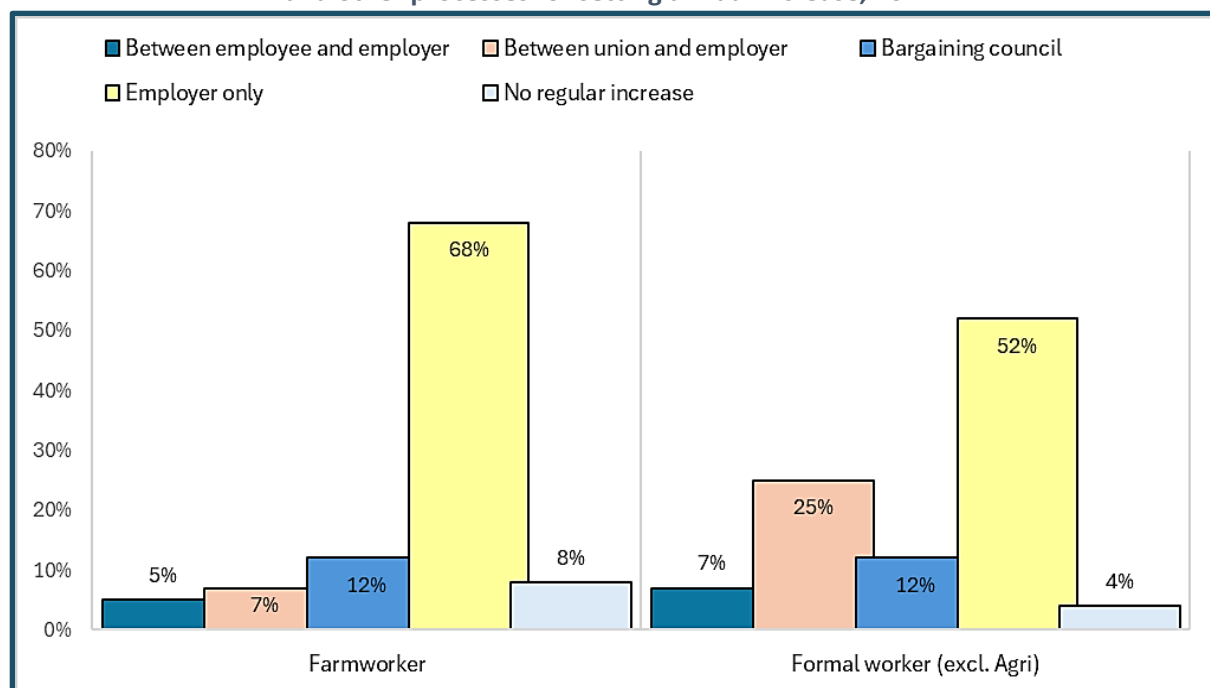
Farmworkers experience greater social and economic isolation than other formal workers, partly due to lower education levels and on-farm residence. This isolation manifests in insecure job arrangements, weak worker organisation, poor enforcement of labour rights, and limited access to communication tools and public services. They also receive fewer social grants and remittances, indicating weaker support networks (Makgetla et al., 2019, p.122).

Farmworkers are far more likely to hold temporary or seasonal positions. In 2024, 40% were permanently employed and 30% were temporary. By comparison, 70% of formal non-agricultural workers held permanent positions and 16% were temporary (calculated from Statistics South Africa, 2024a). Among farmworkers, just 34% of women held permanent roles compared to 43% of men. Women were also more likely to have temporary contracts (41% of women vs. 23% of men).

Union membership is significantly lower among farmworkers, at only 6% in 2024 compared to 37% for formal workers outside agriculture. Due to seasonal work patterns and weak representation, farmworkers are less likely to receive an annual pay increase. Where increases occur, employers typically set the amount unilaterally, with 68% of workers not involved in negotiations (Graph 9). In contrast, 25% of formal non-agricultural workers had increases negotiated by unions in 2024. Female farmworkers were also less involved in negotiations: only 33% participated, compared to 67% of male farmworkers and 44% of women in other formal sectors (calculated from Stats SA, 2024a).

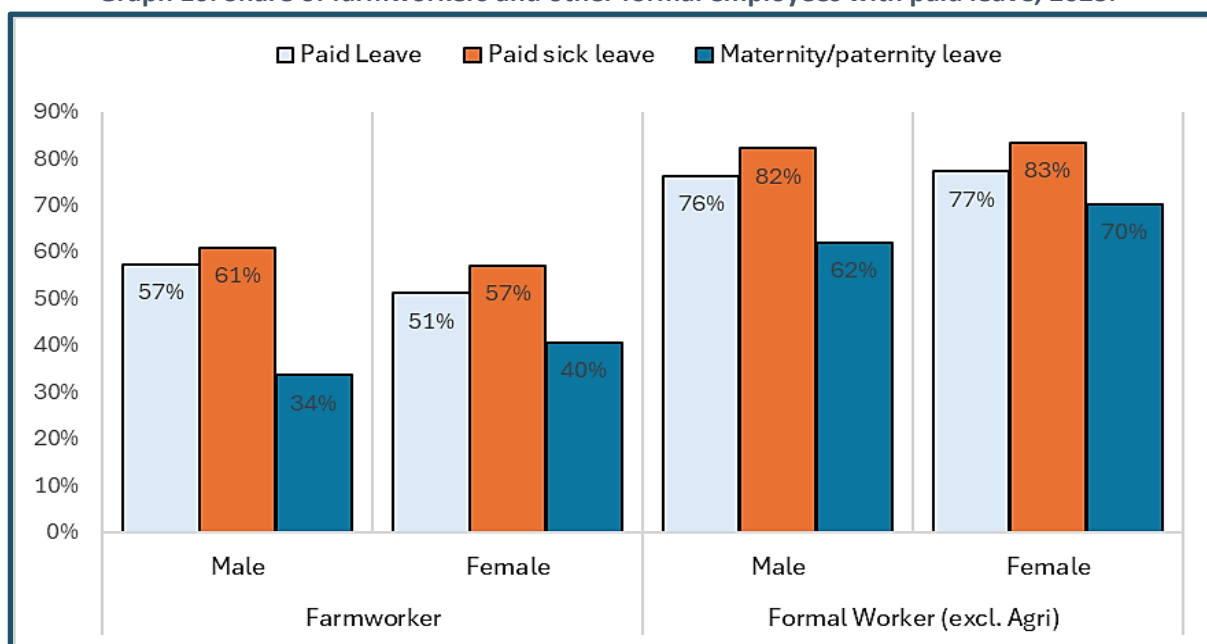
Due to job insecurity and low union coverage, many farmworkers lack basic legal protections like paid annual leave, sick leave, and maternity/paternity leave. The gap between male and female farmworkers is not drastic, but both are less likely to receive these benefits compared to formal non-agricultural workers. Although paid maternity and paternity leave are not mandatory, female farmworkers were less likely to receive such benefits than women in other sectors (Graph 10).

Graph 9. Share of farmworkers and other formal employees involved in collective bargaining and other processes for setting annual increase, 2024



Source: Calculated from Statistics South Africa. Labour Market Dynamics, 2024. Electronic database. Series on earnings for employees. Database downloaded from ISibalo Data facility at www.statssa.gov.za in August 2025.

Graph 10. Share of farmworkers and other formal employees with paid leave, 2023.



Source: Calculated from Statistics South Africa. Labour Market Dynamics, 2023. Electronic database. Series on earnings for employees. Database downloaded from ISibalo Data facility at www.statssa.gov.za in August 2025.

Farmworkers' isolation is further worsened by limited access to telecommunications. According to the Western Cape Department of Agriculture, they are less likely to have contract mobile phone plans or reliable internet (WCDoA, 2021, p.44). In 2023, 75% of people on farms reported owning a working mobile phone, but only 19% had a computer or laptop. This compares to 33% computer ownership in urban areas and 83% mobile phone ownership. Fixed-line internet was rare on farms, with only 11% reporting access, compared to 26% of urban households. Farm households were also less likely to access broadcast media or pay TV (calculated from Stats SA, 2024a).

5.2. Farmers and gardeners in the historic labour-sending regions

In former labour-sending regions, climate change will directly affect household food security through water scarcity and extreme weather, leading to crop failure in family gardens. The principal risk is hunger, not job loss since most people who undertake agricultural activities in these areas do not rely primarily on farming for either food or income. They are, however, already highly vulnerable to hunger. About 23% of agriculturally dependent households in these "traditional" areas⁵ experienced food insufficiency, a rate higher than in urban (13%) or commercial farming (11%) areas (calculated from Stats SA, 2024b).

In 2024, only 17% of South African households participated in agricultural activities. Participation was highest in Limpopo (36%), Eastern Cape (32%), and Mpumalanga (32%), and lowest in the Western Cape (3%) and Gauteng (5%) (Stats SA, 2024b). Most households in South Africa engaged in agriculture did not rely on it as their main income source – only about 3% did so. The majority participated to secure an additional (75%) or primary (13%) food source, with producing an additional source being particularly common in Limpopo (83%) and Mpumalanga (82%) (Stats SA, 2024b). The median effort is also around four hours per week, with only 3% farming more than 20 hours (Stats SA, 2022). These

⁵ "Traditional" areas are communal lands under the jurisdiction of traditional authorities.

patterns indicate smallholder food gardening rather than commercial farming. Around 10% used farmland, while over 90% relied on backyards (calculated Stats SA, 2024b).

Labelling them “farmers” overstates the scale and commercial role of their production. Makgetla et al. (2019, p.129) also caution against the term “subsistence farmers”. Unlike much of Africa, most small producers in South Africa do not primarily feed themselves through farming. Colonial and apartheid policies displaced African producers, denying them land, markets, and infrastructure. Settlement patterns have left these households unevenly distributed, so climate impacts will vary by location and crop type. Importantly, most of the households within the historic labour-sending regions are what is considered “traditional”. Participation in agriculture also differs by province, influenced by former homeland policies and agro-ecological potential. Even before climate impacts, most lacked sufficient land, irrigation, infrastructure, markets, and training (Makgetla et al., 2019, pp.122-123).

Notably, women in South Africa tend to fare worse than men on most socio-economic indicators. Gender analysis is, however, limited by the reliance on the declared “household head” in national surveys. Although nominally based on income, ownership, and decision-making, in practice:

- Equitable partnerships are overlooked,
- Men are often listed by default, even when women are primary earners or decision-makers, and
- “Woman-headed” households tend to be pensioner-led, with less earned income and greater reliance on grants.

Thus, while most “woman-headed” households are genuinely led by women, some “man-headed” households are effectively female-led (Makgetla et al., 2019, p.129). Due to apartheid-era family disruptions, South Africa has a high proportion of “woman-headed” households. In 2024, woman-headed households that relied on agriculture as a main source of income in the historic labour-sending regions constituted 50% of household heads, compared to 39% in urban areas and 26% of households in commercial farming areas (calculated from Stats SA, 2024). “Woman-headed” households were also more likely to use agriculture as an additional or supplementary source of income or food.

Like farmworkers, these households have limited adaptive capacity. The following sub-sections (5.2.1, 5.2.2, 5.2.3 and 5.2.4) reviews their financial means, physical assets, skills, and social networks.

As outlined in Section 4.1, the Northern Cape, Eastern Cape, North West, and Limpopo face the greatest climate risks. The CSIR (2019) notes that Northern Cape settlements are at the highest risk of extreme heat stress, which could undermine public health and living conditions without adequate planning. Most settlements in the North West and Limpopo are also highly exposed to rising heat stress, while Gauteng and Mpumalanga face moderate risk. Historic labour-sending regions already experience high socio-economic vulnerability, which climate change is likely to intensify.

Research also indicates a growing climate threat to smallholder farmers. A study in Mpumalanga found that rising temperatures will increase heatwaves, elevate wildfire risks, raise cooling energy demand, disrupt ecosystems, and affect food security and biodiversity. In Phumulani Agri Village, windstorms destroyed greenhouses, halted production, and reduced incomes (Zenda, Rudolph and Harley, 2024). Recent events since 2019 further demonstrate escalating climate risk. The April 2022 floods in KwaZulu-Natal damaged infrastructure and disrupted 30% of national food and beverage manufacturing (Hector, 2025). In June 2025, Eastern Cape floods caused loss of life, displacement, and widespread infrastructure damage. Areas such as Mthatha West and Coffee Bay experienced prolonged water disruptions and damage to public health facilities, with lasting impacts on healthcare delivery (SAnews, 2025a).

5.2.1. Financial resources

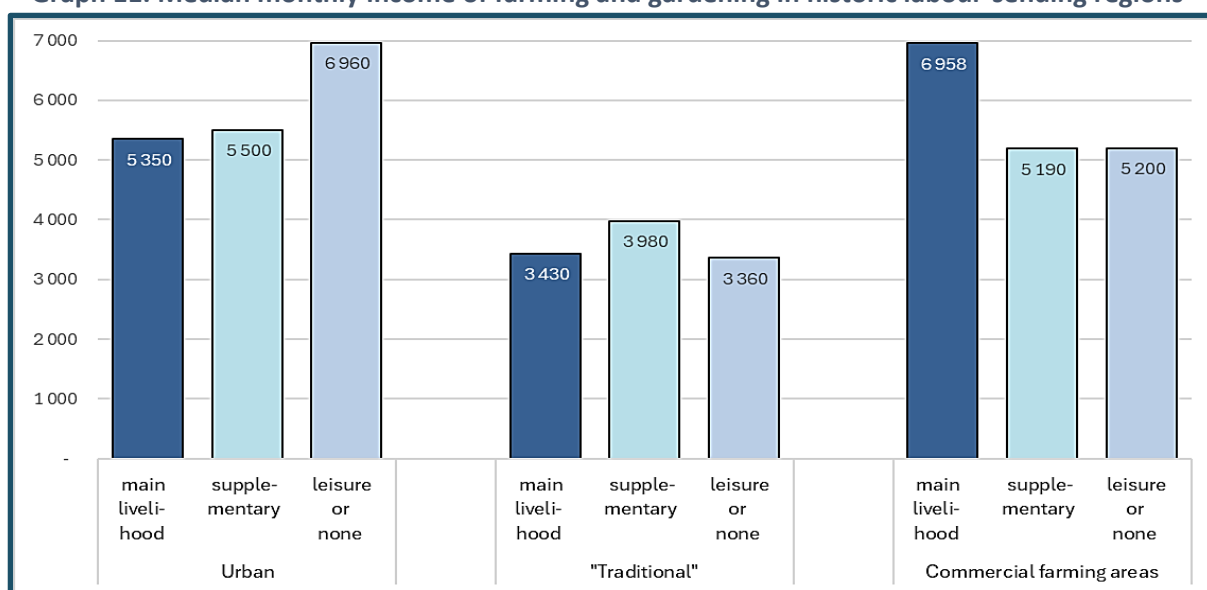
Households in former labour-sending areas have long faced limited job opportunities and persistently low incomes, key factors which prevent adaptation to the impacts of climate change. Overall, households in the historic labour-sending regions have lower incomes and savings than those in the rest of the country, particularly if they are “woman-headed”. In historic labour-sending regions, median monthly income ranged from R7000 for those who farmed in commercial farming areas, to under R4000 for those who farmed in “traditional” areas in 2024. In urban areas, those who did not farm or used farming as a leisure activity had a median income of just under R7000 per month (Graph 11).

Recent research shows that rural households in South Africa, especially in former homeland or historic labour-sending areas, have limited access to formal financial and credit services. Smallholder farmers in these regions are also often resource-poor and financially constrained, with emerging farmers particularly affected (Mtombeni, Bove and Thibane, 2019, p.9). Low incomes and limited savings further prevent many from adopting new farming technologies. Those maintaining gardens also typically have even fewer resources, partly due to higher unemployment (Makgetla et al., 2019, p.113).

In 2024, 55% of South African households reported salaries, wages, or commissions as their main income source, followed by social grants (24%), other income (10%), and remittances (9%). Income sources differ sharply by province (Stats SA, 2024b, p.57). In the historic labour-sending regions, people were less likely to have salaries and relied on agriculture as a main source of income (around 23%) compared to those in urban areas and commercial farming areas, especially those who used agriculture as a leisure activity. In addition, these households in the historic labour-sending regions were more likely to rely on social grants (53%) compared to those in urban and commercial farming areas (Graph 12)

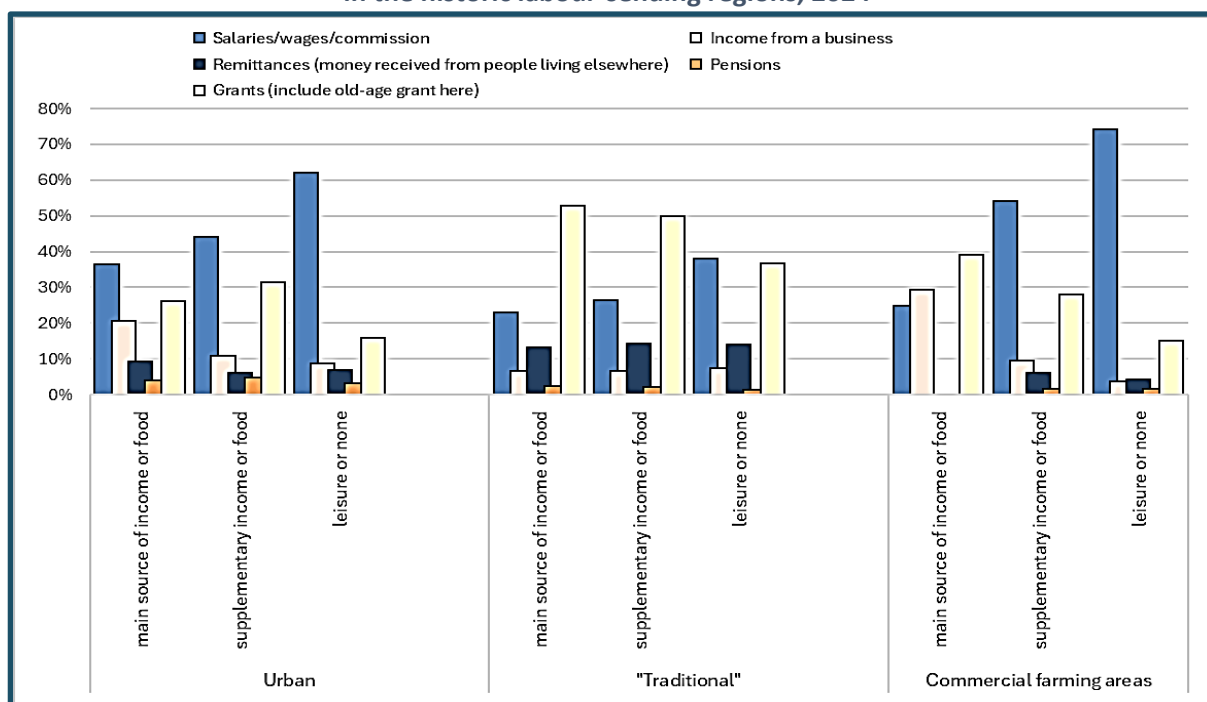
Traditional households in the historic labour-sending regions were also more likely than households in urban and commercial farming areas to have households where the household heads were not economically active, whether they farmed or not (Graph 13).

Graph 11. Median monthly income of farming and gardening in historic labour-sending regions



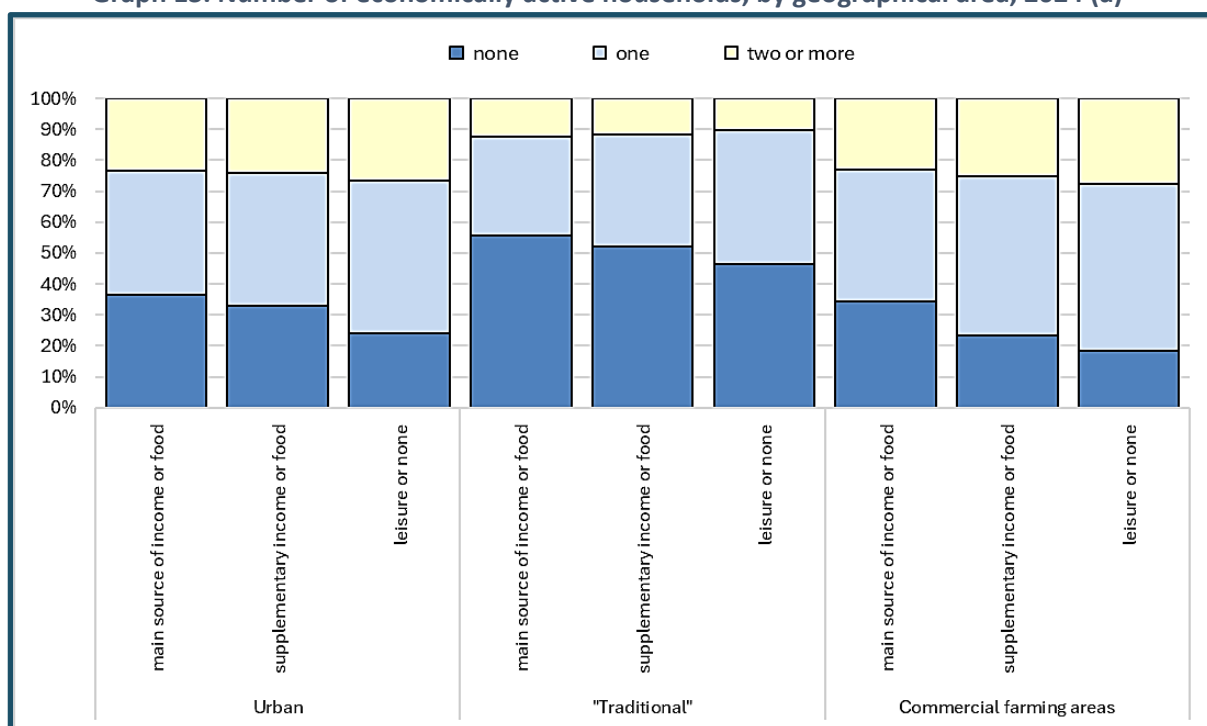
Source: Calculated from Statistics South Africa. General Household Survey ,2024. Electronic database. Database downloaded from ISibalo Data facility at www.statssa.gov.za in August 2025.

Graph 12. Income sources for gardening and other households in the historic labour-sending regions, 2024



Source: Calculated from Statistics South Africa. General Household Survey ,2024. Electronic database. Database downloaded from ISibalo Data facility at www.statssa.gov.za in August 2025.

Graph 13. Number of economically active households, by geographical area, 2024 (a)



Source: Calculated from Statistics South Africa. General Household Survey ,2024. Electronic database. Database downloaded from ISibalo Data facility at www.statssa.gov.za in August 2025. Note (a): Homes with backyard.

5.2.2. Physical assets

Households in historic labour-sending regions typically own their homes – a situation different from most farmworkers, who do not own their homes – but have limited access to farmland or irrigation. These homes generally have low market value due to the absence of basic services (Makgetla et al., 2019, p.134). For the type of dwelling among those who farmed/gardened in the historic labour-sending regions, most were traditional dwellings⁶. By province, traditional dwellings were more common in the Eastern Cape (18%) and KwaZulu-Natal (10%) in 2024 (Maluleke, 2025). Households in “traditional” and commercial farming areas that rely on agriculture as a primary source of income or food predominantly live in traditional dwellings (13% and 20%, respectively). This contrasts with their urban counterparts, where only 2% of such households reside in traditional dwellings; with most living in multi-family homes (calculated Stats SA, 2024b).

In the historic labour-sending regions, farming occurs primarily in backyards rather than on formal farmland. Consequently, this land does not function as a liquid economic asset as it cannot be sold. Land ownership is also complex and less common than in the rest of the country, largely due to the prevalence of traditional tenure systems where land is administered by traditional authorities rather than privately owned (Makgetla et al., 2019, p.135). This governance structure creates a distinct context from urban areas. Ownership rates vary by a household’s reliance on agriculture: 78% for those who depend on it as a main source, 90% for those for whom it is supplementary, and 72% for those who treat it as leisure. For context, in urban areas, only 50% of those relying on agriculture as a main source own their land (calculated from Stats SA, 2024b).

Even before climate change, most households could not rely on farming due to limited land, irrigation, markets, and training. Irrigation is critical for drought management, but rising temperatures increase evaporation, reducing the effectiveness of dams during prolonged dry spells. Access to water partly explains regional differences in housing value, with about 4% having piped water inside their dwellings in “traditional” areas and 31% having piped water outside their dwellings among those who saw agriculture as a main source of income or food.

For comparison, 56% of households in urban areas had piped water inside their dwellings and 32% outside their dwellings (calculated from Stats SA, 2024). The use of a rainwater tank (20%) and public/communal (13%) tap and borehole water (8%) was more prevalent in “traditional” areas (calculated from Stats SA, 2024b).

Households in historically overcrowded labour-sending regions face entrenched land scarcity, a challenge exacerbated by land degradation and extreme weather that undermines agriculture and deepens vulnerability. This perception is reflected in local experience: a majority of agriculturally-dependent households in these “traditional” areas report land degradation as a key environmental problem, including 55% of those for whom it is a primary source of income or food, and 59% of those for whom it is supplementary (calculated from Stats SA, 2024b). Heavy rains, intensified by climate change, have caused severe flooding in the Eastern Cape and KwaZulu-Natal. The June 2025 floods in Mthatha, which displaced thousands and resulted in over 100 deaths, exposed both the vulnerability of rural areas and deficiencies in land-use planning and disaster response⁷.

⁶ “Traditional” dwellings are structures built from clay, mud, reeds, or other locally available materials. This category includes huts, rondavels, and similar forms of housing, which may stand alone or be grouped in clusters.

⁷ For more see: *Deadly Mthatha flood underscores worsening climate risks for SA* (Engel, 2025).

Disaster response is thus critical for mitigating the negative impacts of climate change, as inadequate action will deepen household vulnerability in these regions – particularly as extreme weather events become more frequent and severe. South Africa faces increasing exposure to natural disasters and annual disaster relief costs on average R3.7 billion, with most losses uninsured. As disasters grow more frequent and intense due to rising temperatures, municipalities lack a Disaster Risk Finance (DRF) instrument that can provide immediate, large-scale funding. Budget reprioritisation and reserves offer only limited and uneven support, while response grants take around five months to be released. This leaves municipalities without reliable, timely financing for severe climate-related disasters.

Over the past two years, 54% of South African municipalities received disaster grants, with R2.4 billion allocated in 2023/24. Municipalities use various DRF instruments, but all have limitations: budget reprioritisation is immediate but diverts funds from other needs; contingency reserves are rarely feasible; insurance is costly with delayed payouts; and debt is not utilised. Smaller rural municipalities (especially in historic labour-sending regions, which face the highest disaster risks) rely heavily on response grants but experience prolonged delays due to verification processes, limited capacity, and approval uncertainties. Slow and fragmented non-financial support further stretches response grants beyond their intended purpose, leaving municipalities without reliable or timely disaster funding (National Treasury and World Bank Group, 2025, pp.7-8).

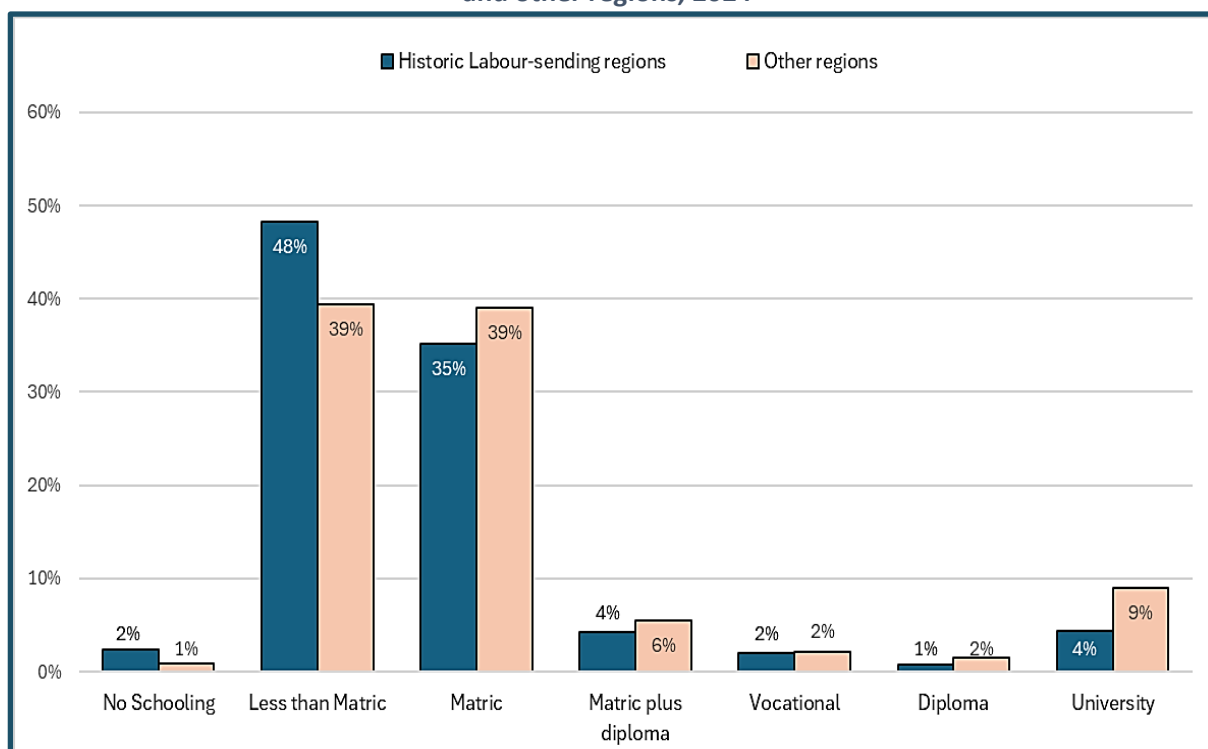
5.2.3. Human capital

Educational attainment remains lower in historic labour-sending regions than elsewhere in the country. In 2024, adults aged 18 to 64 in these areas were more likely to have no formal education and less likely to have completed matric compared to those in other regions. Only around 4% held a university degree, while nearly 50% had not completed matric (Graph 14). These regions also tend to have older household populations, largely due to mass out-migration after residential restrictions were lifted in 1994 (Makgetla et al., 2019, pp.136-137).

Internet access is a critical component of human capital development, influencing education, employment, health services, and social inclusion. However, household internet connectivity in historic labour-sending regions is low compared to the rest of the country. Within these regions, disparities exist; with households in urban and commercial farming areas being more likely to have fixed internet connections than those in “traditional” areas (Graph 15). Furthermore, agriculturally dependent households in “traditional” areas, specifically those relying on farming as a main source of income or food, are also less likely to own a computer or laptop.

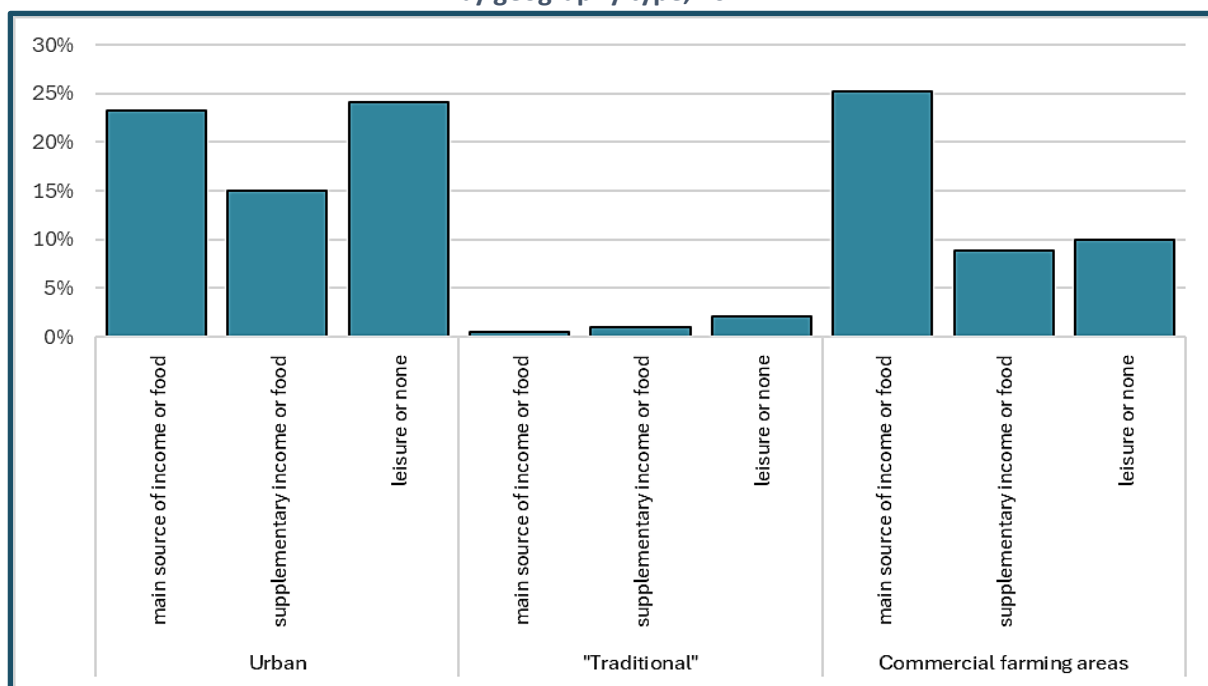
With healthcare, access to health services directly influences human capital by impacting an individual’s ability to maintain good health and to participate productively in the economy. Travel time to healthcare facilities serves as an indicator of this access. Those in “traditional” areas, whether they farmed or not, tend to be between 15 and 30 minutes with some being between 30 and 90 minutes away from the nearest health facility, as opposed to households in urban areas, where the majority are 15 minutes or less away from the nearest health facility (calculated from Stats SA, 2024b).

Graph 14. Education levels of household members (18-64) in historic labour-sending and other regions, 2024



Source: Calculated from Statistics South Africa. General Household Survey, 2024. Electronic database. Downloaded from ISibalo Data facility at www.statssa.gov.za in August 2025.

Graph 15. Household access to internet connection in historic labour-sending regions, by geography type, 2024



Source: Calculated from Statistics South Africa. General Household Survey, 2024. Electronic database. Downloaded from ISibalo Data facility at www.statssa.gov.za in August 2025.

5.2.4. Social capital

Households engaged in agriculture in historic labour-sending regions relied more on social grants, which provided some cushion against climate-related shocks. In 2024, access to pensions and UIF remained limited. Although women constitute a larger share of the elderly, men are significantly more likely to receive pensions (Makgetla et al., 2019, p.137). “Woman-headed” households in the historic labour-sending regions were also more likely to rely on social grants and remittances as main income sources. Among the unemployed, women tended to depend more on child support grants, while men showed higher reliance on welfare grants.

Government support in these regions has generally been inadequate. While communities proposed responses to drought, such as brickmaking and community gardens, municipal support was limited. Studies have documented widespread neglect of irrigation infrastructure, with many dams silted, damaged, or abandoned. In some cases, decision-makers prioritised large-scale farming, tourism, and mining over sustaining smallholder irrigation systems (Makgetla et al., 2019, p.138).

More recently, the Social Relief of Distress Grant, introduced in 2020, provides monthly financial support to unemployed individuals aged 18-60 with no other income and earnings below R624 per month. The grant was extended to March 2026, and the amount increased from R350 to R370 in 2025. In addition, efforts are being made by some provincial governments in the historic labour-sending regions. Specifically, the North West Department of Agriculture and Rural Development allocated R252 million for agricultural support, food security, and rural livelihoods in the 2025/26 fiscal year. This includes R185 million for the Comprehensive Agricultural Support Programme and R66 million for the Ilima/Letsema grant. The funding targets key commodities such as red meat, groundnuts, macadamia, hemp, grains, vegetables, fruits, and beekeeping, aiming to create jobs, support agribusiness, and improve market access. Over 1900 smallholder and emerging farmers are expected to benefit from infrastructure, inputs, mechanisation, and training (SAnews, 2025b).

Rural governance does, however, remain fragmented due to tensions between traditional authorities and elected municipal governments. This dual structure – rooted in political compromises during the transition to democracy and recognised in the Constitution – has created persistent conflict over land, authority, and resource allocation. As Nyathi and Ajani (2024) note, many expected land administration to shift to elected councillors post-apartheid. However, some traditional leaders resisted (and continue to) municipal authority. This unresolved contestation continues to undermine effective governance and create confusion over roles and responsibilities (Mvenene, 2023; Selibas, 2023).

5.3. Farming communities

Data on South African communities have not been updated since Statistics South Africa’s 2016 Community Survey, which remains the most recent source. As Makgetla et al. (2019, p.138) argue, municipal figures for agricultural gross value-added fail to capture the extent of reliance on household-level farming in historic labour-sending regions. These figures primarily reflect commercial farming output and exclude the subsistence production many households rely on for food security.

However, climate impacts are expected to be severe in areas dependent on agriculture for livelihoods. For instance, South Africa’s livestock sector (specifically red meat) is concentrated in the Central Karoo, spanning the Western and Northern Cape. This region is projected to face rising temperatures, more intense heatwaves, and longer, more frequent dry spells. Towns such as Calvinia, Carnarvon, Fraserburg, Loxton, Noupoot, Petrusville, Richmond, and Victoria West are especially vulnerable, as

most livelihoods depend heavily on livestock farming. In horticulture, apple-producing regions in the Western Cape – such as Elgin, Grabouw, Vyeboom, and Villiersdorp – are particularly affected by rising temperatures (CSIR, 2019).

Smallholder producers in these areas typically lack access to crop insurance and water-efficient technologies. A study in the Frances Baard District Municipality (Northern Cape) found that only 9% of smallholder livestock-farming households were resilient to agricultural drought, while 91% were not. Most could not afford insurance, despite its importance for risk management (Maltou and Bahta, 2019). In water-scarce provinces such as the Eastern Cape, many farming communities still lack irrigation access. Smallholders are often too poor to afford technologies for water extraction or conservation (Mtyelwa, Yusuf and Popoola, 2022, pp.82-83).

6. CONCLUSION

Climate change disproportionately threatens South Africa's most vulnerable groups, namely farmworkers and households in historic labour-sending regions. Farmworkers face a precarious future due to employment-tied housing, low education, and geographic isolation. Climate-related job losses threaten immediate homelessness, with limited assets and weak social capital constraining their adaptive capacity. Households in labour-sending regions risk food security from crop failure. Characterised by low incomes, grant dependency, and poor irrigation access, they lack resources for climate resilience, with fragmented governance and inadequate disaster response intensifying their vulnerability. While temporary support measures exist, they are still inadequate against systemic challenges. Effective adaptation thus requires targeted intervention; and without urgent action, climate change will further deepen inequality in South Africa.

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