

# Georgia | Impacts of Climate Change and Adaptation in Agriculture



Annual changes in % are between a climate change scenario without adaptation (SCC) and a climate change scenario with adaptation (SCCA).

Find the underlying analysis in the [sectoral policy brief "Georgia: Economy-wide Effects of Adaptation in Agriculture"](#) and in the report ["Supporting climate resilient economic development in Georgia"](#)

## Georgia's agriculture is vulnerable to climate change



**Heatwaves** can cause **harvest losses** (e.g., grapes) and **damages to irrigation systems**.



**Extreme precipitation** may result in **crop losses** due to flooded fields.



**Heavy wind** removes and transports soil material & causes land degradation (wind erosion), which can lead to **crop losses**.



Negative impacts on agriculture can lead to **lower growth in other sectors, lower GDP and employment**.

## Exemplary adaptation measures for reducing vulnerability to heavy wind and droughts



### Windbreaks

**Restoring windbreaks** such as trees and bushes can **reduce the negative direct impacts** of wind erosion due to climate change. As a result, investments in windbreaks may on average lead to about **18% higher crop yields per year** than without this adaptation measure (Moore n.d., Geostat 2020).

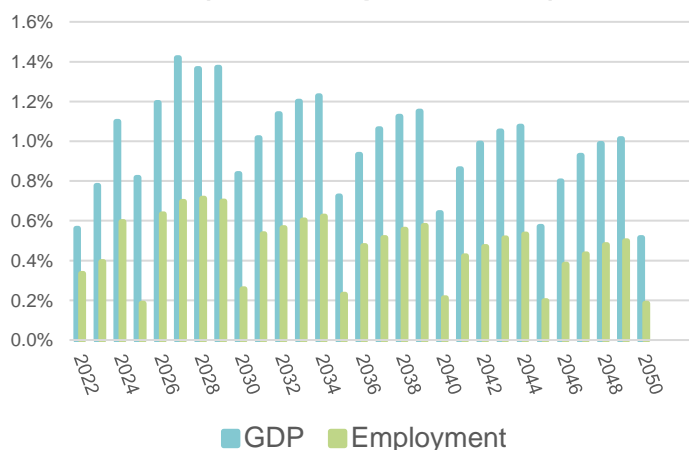


### Irrigation Systems

**Modernizing and rehabilitating irrigation systems** can **sustain high yields** of Georgia's **horticultural crop production** in the future despite rising temperatures and great variation in precipitation patterns. Investing in irrigation systems may on average lead to about **15% higher crop yields per year** than without this adaptation measure (MoA 2017).

## Economy-wide benefits of windbreaks and irrigations systems

**Economy-wide effects of windbreaks (SACC compared to SCC)**



### References

Geostat (2020): Agriculture of Georgia 2019. Preliminary data on plant growing. National Statistics Office of Georgia. Tbilisi.  
MoA (2017): Irrigation Strategy for Georgia 2017-2025. Ministry of Agriculture. Tbilisi.  
Moore, L. (n.d.): Economics of Windbreaks. USDA-NRCS.

Macroeconomic modelling allows for **long-term assessment of economy-wide effects** of adaptation measures.

- Investments in the restoration of **windbreaks** can result in up to **1.4% higher GDP** (resp. GEL 747 million) and **up to 0.7% higher employment corresponding to more than 12,000 additional jobs per year** (SACC compared to SCC).
- Investments in **windbreaks** have **positive sectoral linkages** leading to **increased wage levels and higher consumption expenditure** of up to **1.1% p.a.** (SACC compared to SCC).
- Similarly, to windbreak investments, investments in irrigation systems can lead to **annual GDP increases of up to 1%** and up to **0.6% higher employment per year corresponding to more than 10,000 additional jobs** (SACC compared to SCC).

Published by:



On behalf of:



of the Federal Republic of Germany

In cooperation with:

