

# Climate change adaptation as a vehicle for SDG implementation: experiences from small scale vegetable farming in South Africa

C. Musvoto

CSIR Natural Resources and Environment, PO Box 395, Pretoria 0001

Email: [cmusvoto@csir.co.za](mailto:cmusvoto@csir.co.za) — [www.csir.co.za](http://www.csir.co.za)

## INTRODUCTION

South Africa has adopted a sustainable development path, guided by several country level strategies and the global Sustainable Development Goals (SDGs). Agriculture is central to South Africa's sustainable development, with small scale agriculture having a key role. However, the cost of implementation is a key issue for meeting the SDGs, and the sufficiency and availability of financial resources for implementation is a concern (Elder et al. 2016). Linking SDG implementation to initiatives such as climate change adaptation, and exploiting synergies, could improve implementation and reduce implementation costs.

Small scale farmers face increasing resource constraints due to climate change (among other factors), and are adapting by increasing resource use efficiency (including water use efficiency). These adaptation actions could provide avenues for meeting some of the SDG targets. Exploiting such avenues would ensure involvement of small scale farmers in SDG implementation; and resonates with the SDG ideals of "leaving no one behind" and of localization. Furthermore, the UN Development Program (2016) notes that engagement with local communities and stakeholders is necessary to mitigate and potentially remove roadblocks that may impede SDG implementation. UNDP (2018) highlights that localizing the SDGs means making the aspirations of the SDGs become real to communities, households and individuals; particularly to those who are at risk of falling behind. According to UNDP (2018), the SDGs will not be achieved unless communities at the local level see concrete dividends.

## RESULTS

Sustained shortages of irrigation water (from both boreholes and surface sources), frequent droughts and heat waves, all of which could possibly be linked to climate change, have already negatively affected production in the case study areas. Increasing energy costs due to the necessity to irrigate more frequently were an issue. Farmers were willing to adapt to these conditions, and have applied measures to enhance resource efficiency; including minimising irrigation water losses, planting crops that require less water and pumping irrigation water into storage reservoirs instead of pumping directly to irrigate crops. The measures applied were aligned to some of the targets associated with SDGs 1, 2, 6, 8, 12 and 13; and could be vehicles toward achieving some aspects of these goals.

Issue faced by farmers	Intervention	Aligned SDG Goals and Targets	Potential contribution of intervention to achieving SDG targets
Increased frequency & duration of irrigation duration due to higher temperatures & more frequent heat waves	Use of techniques to minimise loss of water such as mulching; irrigation during morning or evening	Goal 2: End hunger Target 2.4 Agricultural practices that increase productivity & production  Goal 6: Clean water & sanitation Target 6.4: Increased water use efficiency	Minimising soil water loss contributes to meeting crop water requirements & increases productivity & production  Minimising soil water loss increases water use efficiency
Increased energy costs due to increased frequency & duration of irrigation because of higher temperatures & more frequent heat waves	Using solar energy for pumping water instead of electricity (derived from coal) or fossil fuels  Pumping water into storage reservoirs instead of directly from boreholes to irrigation systems	Goal 7: Affordable & clean energy Target 7.2: Increase renewable energy in energy mix  Goal 12: Sustainable consumption & production Target 12.2 Sustainable management & efficient use of natural resources	Using solar energy for water pumping increases renewable energy in the energy mix  Pumping water into reservoirs lessens the duration of pumping & conserves energy - contributes to sustainable management & efficient use of resources
Shortages of irrigation water due to frequent droughts & high temperatures as a consequence of changing climatic conditions	Planting drought tolerant crop varieties/ varieties with lower water requirements  Maintaining equipment and infrastructure to minimize water losses	Goal 1: End poverty Target 1.5: Build resilience & reduce exposure & vulnerability to climate related & environmental shocks & disasters  Goal 2: End hunger Target 2.4: Sustainable food production systems, resilient agricultural practices, that increase production & productivity; that strengthen capacity for adaptation to climate change  Goal 6: Clean water & sanitation Target 6.4: Increased water use efficiency  Goal 12: Sustainable consumption & production Target 12.2 Sustainable management & efficient use of natural resources	Growing crop varieties that are able to cope with water shortages builds resilience & reduces vulnerability to climate related & environmental shocks & disasters  Growing crop varieties that are able to cope with water shortages contributes to: <ul style="list-style-type: none"> <li>sustainable food production</li> <li>resilience of agricultural systems</li> <li>increased production &amp; productivity</li> <li>strengthened capacity for adaptation to climate change</li> </ul> Minimising water losses contributes to increased water use efficiency  Minimising water losses contributes to sustainable management & efficient use of water

## OBJECTIVES

The aim of the project was to assist small scale vegetable farmers to adapt to climate change induced resource constraints by adopting production practices that enhance resource efficiency; and to explore SDG implementation opportunities linked to climate change adaptation actions.



## METHODS

The study covered 30 small scale vegetable farmers in three districts of Limpopo Province, South Africa. The research process entailed (1) assessing the operating environment of small scale farmers in the context of changing climatic conditions and the constraints that this imposed, including how efficiently resources were used; (2) identifying interventions to address the constraints, and implementing the interventions; and (3) identifying linkages between the interventions and the SDGs, and opportunities for SDG implementation through climate change adaptation actions. A questionnaire survey, semi-structured interviews; farm observations and a desktop review were used to collect data. Thematic analysis was used for data analysis.

Climate change adaptation actions can facilitate SDG implementation



## IMPLICATIONS FOR POLICY AND PRACTICE

In most countries, including South Africa, agricultural advisory services are routinely provided to farmers. These services generally cover climate change adaptation, but not SDG implementation. The fact that some climate change adaptation actions allow SDG implementation enables existing agricultural advisory services to support both; and presents an opportunity for lowering SDG implementation costs and for translating the SDGs into action at the local level. Such synergies between specific SDGs and climate change adaptation facilitate the crafting of policies and practice guidelines that properly integrate and streamline climate change adaptation with SDG implementation. When SDGs are aligned with accepted climate change adaptation measures, their implementation is less likely to be perceived as onerous by both implementing agencies and communities.

## REFERENCES

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