

## ***Increasing food production and income generation in Africa through better crop nutrition and soil and water management***

### ***The challenge...***

Food insecurity is a key obstacle to development in the African region. This challenge is closely tied to water scarcity and low soil fertility—when soils fail to produce high quality or high yield crops, small-scale farmers and developing communities face significant difficulties. Climate change is further aggravating the situation, as increasing temperature and variability in precipitation affect land degradation and water availability.

Over the last decade, agricultural development programmes in some African Member States have focused on the introduction of water-saving irrigation techniques, such as drip- and sprinkler-irrigation systems. Small-scale irrigation technologies (SSITs), which enable farmers to maximize the potential of limited water and fertilizer supplies, have been used in the past with great success, and would help Member States adapt to the effects of climate change. However, limited knowledge and infrastructure in the region prevents the full implementation of these techniques.

### ***The project...***

Building on the experience of an earlier project, a regional technical cooperation project was set up in 2014 to build awareness of SSITs, and to identify gaps in technical capacity. Obstacles to implementing SSITs included limited availability of the technologies at the local level, a lack of skills in the farming community, insufficient practical water management methods, and a need to identify and select high-yielding crop varieties.

IAEA assistance was provided through expert services, training courses, provision of equipment and fellowships. The project built capacities in the use of nuclear and isotopic techniques, including the use of soil moisture neutron probes and the N-15 technique.

### ***The impact...***

In Kassala, east of Sudan, the SSIT was adopted by six villages in the north of the city and eight villages around Kassala, and was further adopted by another 75 families with the majority being women farmers. The Sudanese Red Crescent and the United Nations High Commission for Refugees in collaboration with counterpart in the Horticultural Research Centre Farm of the Agricultural Research Corporation (ARC) are scaling up the technology, which is a climate change adaptation approach for improving rural livelihoods and poverty alleviation in Sudan.

In Benin, as a result of this project, a government initiative involving farmers on a 50-ha drip irrigation network costing US\$ 550 000 funded by the Islamic Development Bank is currently being implemented. In addition, a similar size project funded by International Fund for Agricultural Development will be implemented in 2016.



*Women farmers benefitting from SSIT.*

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