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Reducing water raises rice yields in Tanzania

After enduring recurring spells of drought, floods and poor harvests, Tanzanian farmers are taking up climate-smart skills to bolster farming efficiency.

Kizito Shigela

In Tanzania, rice farmers who have long experienced extreme weather events are harnessing climate-smart agricultural techniques to boost their yields, whilst curbing environmental degradation. Under a 5-year project dubbed Strengthening the Capacity for Climate Change Adaptation through Sustainable Land and Water Management, farmers in the Morogoro region are adopting innovative techniques to prevent soil erosion, and reduce their water and wood requirements. The project, which started in 2016, is run by Sokoine University of Agriculture with support from FAO.

Mwajuma Kassim is a rice farmer and project beneficiary in Kidugalo village, eastern Morogoro, where more than 3,000 farmers have adopted the System of Rice Intensification (SRI) – a technique of growing more rice with less water and fewer seeds. The method entails transplanting 8-10-day-old paddy seedlings instead of waiting for 30 days to plant them to improve crop rooting. Kassim says that planting fewer seeds than usual, and keeping the paddy plants alternately wet and dry rather than draining the field, allows plants to get more oxygen. This practice reduces competition among the plants, while controlling the water each seedling receives to condition them to thrive in both wet and dry conditions – thus increasing their resilience to drought and floods. Kassim says that her harvest in 2019 will be her best in more than a decade and that she will reap the fruits of her labour 3 weeks earlier than usual.

Mwanaidi Msungu, another farmer in the same village who is applying the SRI technique on her 4 ha farm, explains that she was a laughing stock when she started applying the method 2 years ago. "Those who were laughing at me are now the ones who beg me to teach them. I have reaped 57 bags of rice in 2019. I hardly got 15 bags when using the traditional method," she says.

To increase climate resilience in Tanzania, rice farmers are adopting sustainable land and water management techniques

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In the highland areas of Morogoro, contour bunds have been used to prevent soil erosion and promote water retention. Farmers have received training in how to lay contour lines, dig trenches and produce pineapple trees to provide reinforcement for the bunds; pineapple production also provides an alternative source of income. With the skills acquired through the project, 47-year-old Hamisi Jaka is able to prevent soil erosion on his farm. With a hand hoe, he creates contour ridges known in Swahili as *fanya chini* to slow down the flow of water from the hill. "I am not worried at all about the floods; the risk of my crops being washed away is minimal," he states.

To reduce deforestation and increase climate resilience, the initiative is also encouraging farmers to switch to energy-saving stoves that are more efficient than traditional cooking methods, and use less firewood. Tanzania has one of the highest rates of deforestation in sub-Saharan Africa, with about 372,000 ha of forests destroyed every year, according to FAO's 2015 *Global Forests Resources Assessment*. "Trees are key to protecting soil from erosion, purifying the air and water, and reducing climate change, but many are lost as demand for wood increases," says Godfrey Pyumpa, a district water engineer involved in implementing the project. "We encourage local residents to plant trees and they have responded positively in that regard," he continues, explaining that so far, around 200 farmers have planted 4,308 tree seedlings of different species. The hardwood and fruit tree nurseries provide the means for future energy consumption, but also a means for economic growth and food security. ■