

## Impacts of Sustainable Land Management Practices on Coffee Farming in Sagana-Gura

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Coffee in Kenya is largely grown by more than 700,000 smallholder farmers in over 88,000 Ha of land in 32 counties. Over 99% of the coffee produced is Arabica that is usually rainfed. Coffee farmers use both organic and inorganic fertilizers to improve coffee production on their lands. During the rainy seasons, the nutrients are washed downslope leaving farmers with more demand and expenses for fertilizers to apply on their lands. In some instances, the soils become acidic and an extra cost is incurred to neutralize the soils. These challenges have been further exacerbated by the changing climatic conditions over the years.

According to a [baseline](#) survey conducted by the Upper Tana Nairobi Water Fund (UTNWF) in 2014, the majority of the people in the watershed noted an increase in river turbidity which indicated an increase in soil erosion and surface runoff. According to the farmers, these scenarios were observed to increase over time. At the same time, crop productivity continued to decline for most of the farmers while fertilizers use continued to increase.

The Upper Tana Nairobi Water Fund, working with non-governmental organizations in Nyeri County, embarked to facilitate and capacity build farmers on sustainable management of their lands. The partnership brought a dedicated effort from a network of 20 youth volunteers, county agricultural extension officers, and about 7000 farmers affiliated to the Rumukia Farmers Cooperative Society to implement soil and water conservation measures. Some of the measures include rehabilitation and construction of terraces, agroforestry, rainwater harvesting, and riparian areas conservation.

By 2017, 8,500 coffee farmers allied to the society were implementing sustainable land management practices. In 2018, the coffee production from the farmers increased by 110.6% from the previous year against a national increase of [7.1%](#). In other cooperative societies within the same agroecological zone, there was an increase of 36% in coffee production over the same period.

Ms. [Gladys Wangechi](#), a coffee farmer in Mukurweini and who was awarded as the 2018 best farmer in the watershed noted an increase in her cherry yields after renovating her terraces and implementing other soil conservation measures with guidance from the county extensionist, Sabina Kiarie. The yields from her farm have increased from 3 kg of cherries per tree to 6-10 kg per tree annually.

In the year 2019, coffee production across the watershed declined due to a 62.3% reduction in rainfall during the productive phase of the cherries. However, a higher resilience was observed comparing the productivity in the previous years when rainfall declined. For instance, in 2012/13, rainfall reduced by 37.6% and this resulted in a 57% drop in coffee produced against a 40% drop

in production in 2019. This shows that if the status quo then was maintained in terms of land use and land cover, coffee production in the county would be unsustainable.

Following the Rainforest Alliance certification, the farmers have been getting better premiums for their coffee as compared to other societies in the region. In 2019, the cherry prices per kilo were 32% more than in the neighboring societies as shown in figure 1.

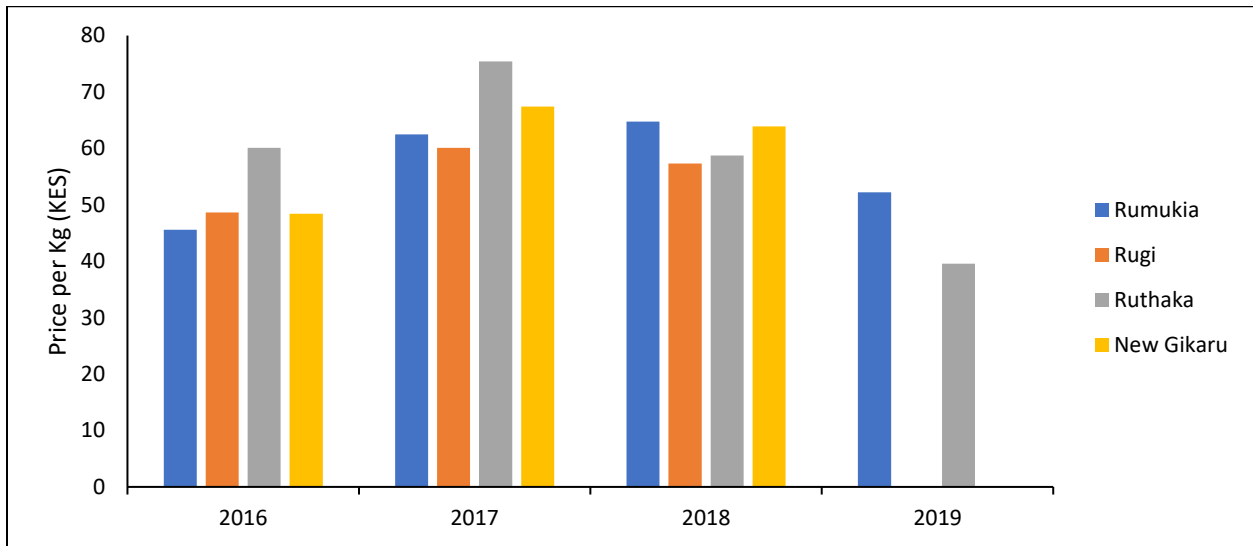


Figure 1: Comparative coffee prices in Sagana-Gura cooperative societies

Coffee cherry prices have also been on the increasing trend as shown in figure 2 below;

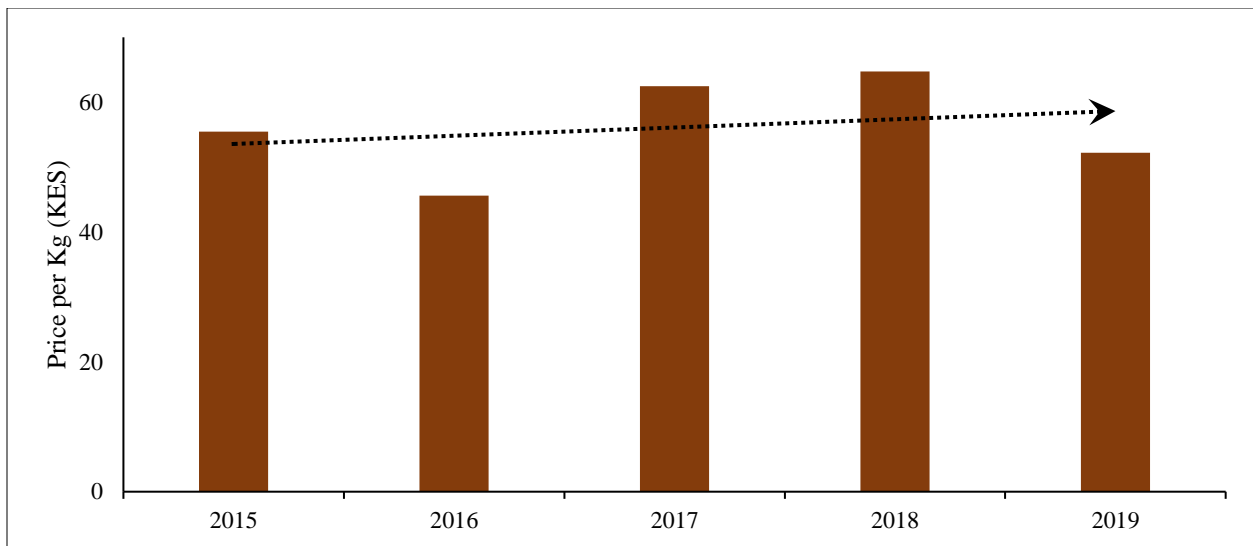


Figure 2: Trends in coffee production in Rumukia Farmers' Cooperative Society.

Rumukia coffee society used to have comparatively low prices of coffee before the certification by the Rainforest Alliance. Ruthaka coffee society, for instance, maintained the niche for better-

priced cherries in the region. After 2017, Rumukia has taken over as the leading society with the best-priced cherries in the region.

Consequently, farmers who had abandoned their coffee crops have rejoined the farming business after realizing the benefits of soil and water conservation and inspiration from other farmers.

In 2019, the number of farmers registered with Rumukia farmers cooperative increased by 470. One of such farmers is Nancy Maathai. She had previously abandoned her coffee owing to low production. Cherry yields from her farm have now increased from an average of 0.5 kg per tree to 3 kg per tree. From the proceeds of her coffee farm, she has been able to construct a water pan from which she uses the water to irrigate her horticultural crops when rainfall is inadequate. She has further scaled up her farming by purchasing dairy cows and goats due to the adequate fodder from her farm.

To further scale-up production, communities should also consume more of their coffee. Despite Kenya coffee being known for its unique flavor, only about 7% of the country's production is consumed locally compared to other countries like Ethiopia that consume half of their production. Higher local demand would lead to accelerated production.

If the lessons learned by these farmers are adopted and implemented to scale, coffee production in the region will increase while at the same time improving their livelihoods and contributing to improving water quality and quantity for downstream water users.