

GROUP 1



Sustainable farming practices and livelihoods enhancement

Stephen Macharia is a smallholder farmer in the Magumu area within Sasumua subwatershed. He joined the Nairobi Water Fund in 2017 after attending a training session on soil and water conservation measures organized by the area extension officer.

Stephen has fully conserved his land by implementing various conservation measures on his farm, including agroforestry, grass strips, and terraces.

Owing to the unpredictable weather in what otherwise used to be a very wet region, Stephen excavated a 100,000 liters water pan that he uses to harvest rainwater from roof gutters. This enables him to grow his crops during off seasons when he can get better prices for his produce. In an acre of land, Stephen can produce 14,000 heads of cabbages. By introducing water pans and efficient water use through drip kits, Stephen notes that his production improved from 55% to 95%. He is currently excavating a second water pan to further scale his production. Stephen is also the chairman of Sasumua water resources users association (WRUA) that has established a tree nursery on his farm. Tree seedlings benefit members of the WRUA and also generate income for the WRUA when they are sold to neighbors and other organizations. The WRUA has fully conserved the Sasumua River that directly feeds into the Sasumua reservoir for the Nairobi City water supply.

During the 2023 World Water Day, Stephen was awarded by the Trust for his innovative approaches to riverine conservation and sustainable farmland management.



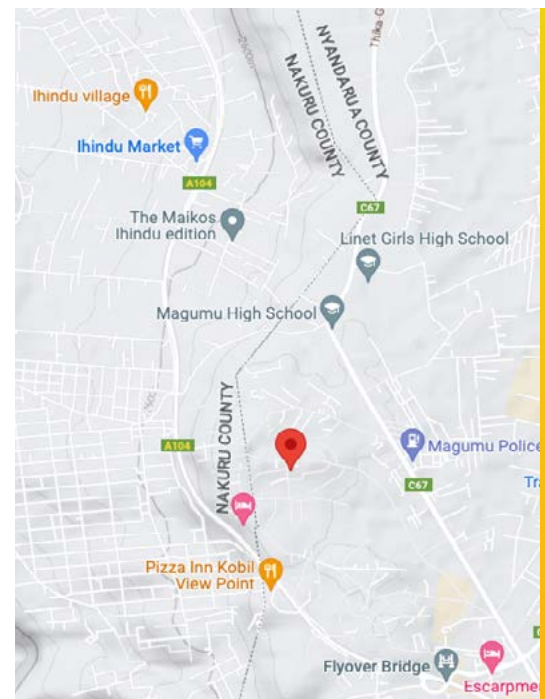
Photo 1: Stephen on his farm where he had just planted cabbages during the dry period in March 2023. His timing was to optimize on the rainfall in April while harvesting more water in the water pan.

Resilient Food System Field Visit to Upper Tana-Nairobi Water Fund(UTNWF)

Kenya

8 June 2023

Farmer and site details



RFS TRACK series

Produced by:





Community participation in riparian lands conservation

The Sasumua River in Nyandarua County is a crucial water source for the Sasumua reservoir and the neighboring communities. Increasing demand for water in the region by people and livestock led to unsustainable resource management. The riverbanks collapsed as freely grazing animals along the river line entered the stream for water. In the downstream, the water quality was increasingly deteriorating.

The Water Fund partnered with the community through the Sasumua Water Resources Users Association to innovatively conserve and protect the riverbanks from further damage. An agreement was reached where the communities created a social fence/barrier beyond which people and animals do not infringe on its protection. The barrier is seen as a continuous yellow line on the roads where drivers are not allowed to overtake vehicles. Animals were trained to take water from a designated point with stable banks. Consequently, the river has been protected, the banks are stable, and there is improved water quality. It was a win-win for downstream water users, the community, and the animals.

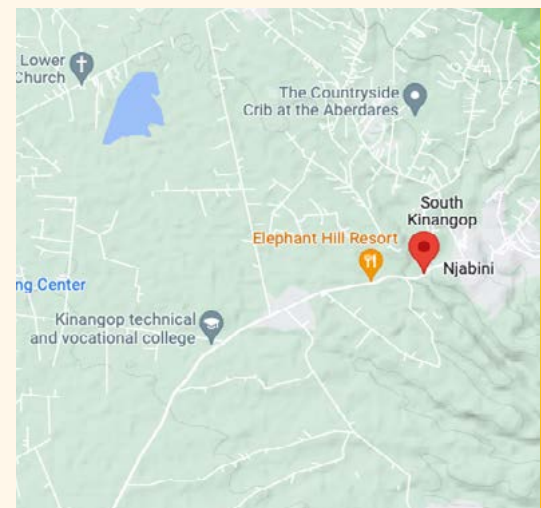
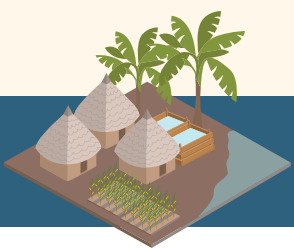


Photo 2: The Sasumua River “Yellow Line” was established to protect the riverbanks and improve water quality.



Community water pan: Rainwater harvesting for livestock and irrigation intensification

Communities around the Wachira-Heni village are horticultural farmers, and for decades, they depended on rained agriculture to cultivate their crops. Over the years, with the unpredictability of the weather patterns, their yields continued to decrease as the cost of production increased.

The Upper Tana Nairobi Water Fund, in collaboration with the County Government of Nyandarua, rehabilitated a communal dam that would be a game changer for the small farmers in the village. The County Government Water Engineers designed the dam and the rehabilitation process while the UTNWF provided the funding.

The dam has a capacity of 22 million liters. Over 500 households have benefited from the dam with domestic water, irrigation, and livestock watering. A common watering point was designed to prevent animals from drinking directly from the reservoir. Farmers can reliably grow their crops during off seasons as demand for vegetables has recently increased. As more water is harvested, and stored in the watershed during the rainy season, flows in the rivers increase during the dry season due to reduced abstraction and improved baseflow.

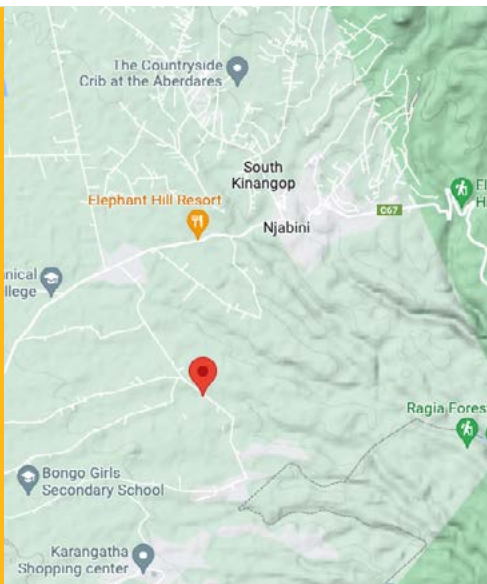


Photo 3: Rainwater harvesting in a communal reservoir - Sasumua subwatershed.

GROUP 2



Sustainable farming practices and livelihoods enhancement

Peter Kamau is a smallholder horticultural farmer in Kiburu village in Sasumua subwatershed. Peter was a strawberry farmer who depended on rainfall for his production. He often incurred losses due to inadequate or lack of rain in the region, which was not heard of in the last 20 years. As the impact of climate change becomes persistent, innovative measures to keep farmers productive are required to enhance their livelihoods and improve food security.

In 2018 the Upper Tana Nairobi Water Fund introduced a technology for rainwater harvesting from the rooftops and surface runoff into a water pan. Peter excavated a 100,000 liters water pan and was assisted in lining

it with UVI-treated polyethylene material. He notes that the harvested water has helped him sustain the crop water requirement on his farm and improve the overall production. He uses the drip irrigation method of water application to utilize the harvested water efficiently. He has scaled his strawberry production from 0.5 acres to 2 acres. With an output of 300 - 400 punnets of fruit per week, Peter has employed more people to work on his farm, especially during the harvesting and planting season.

With increased income from his farm, Peter has diversified to dairy goat farming, which he also uses to produce organic manure for his farm.

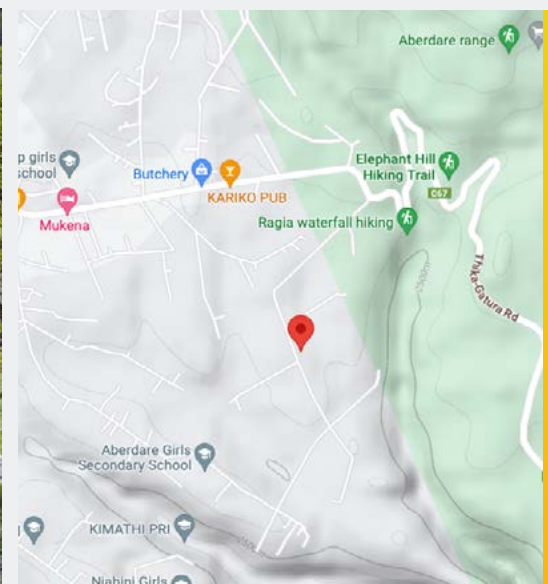
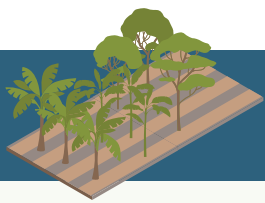


Photo 4: Peter Kamau on his strawberry farm in Kiburu village.



Reforestation in public forests: Working with communities and CFAs

Over the years, public forests faced the threat of deforestation and unsustainable conversion to agriculture. Extensive reforestation in public areas requires a concerted effort to ensure tree survival, mainly where grazing is conducted inside such forests. The results would be increased soil erosion and reduced land cover for carbon sequestration – the latter increasing the effects of climate change locally and regionally.

Working with the local communities through their groups - the Community Forest Associations (CFA) - the Upper Tana Nairobi Water Fund has reforested over 390 acres in six public forests. Members of the CFA are mandated

to ensure that all trees planted on their allocated portion of the land grow to a level that no more crops would productively grow under them. This was seen as a win-win scenario to grow trees while ensuring communities benefit from available resources. In Ragia Forest, 100 acres of forest have been reforested in collaboration with the Kenya Forest Service (KFS) and the Ragia CFA through the Plantation Establishment and Livelihoods Improvement Scheme (PELIS). The survival rate of trees is over 90%. The communities are looking forward to continuing working to reforest other remaining areas in the watershed.

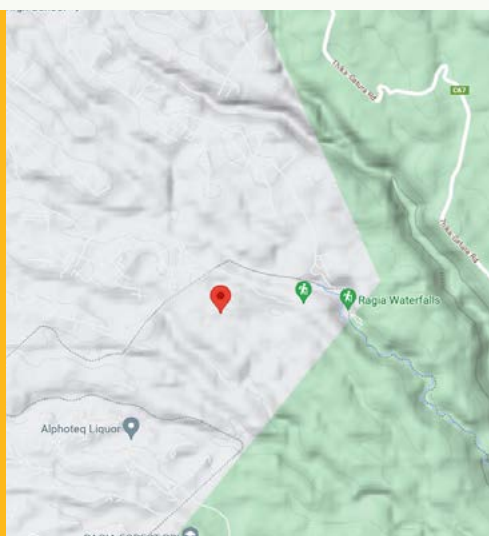
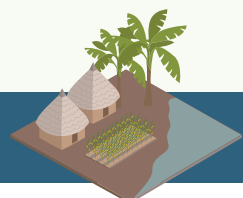


Photo 5: Section of Ragia Forest that has been rehabilitated.



Courtesy call to the Sasumua Dam Coordinator

Over 4 million people working or living in Nairobi City depend on water from Sasumua Reservoir in Nyandarua County or Ndakaini Reservoir in Murang'a County, as shown in the map.

Sasumua Reservoir supplies about 11-15% of water consumed in the watershed. Downstream of the reservoir is River Chania which is crucial to meeting the demand for water for the city. Unsustainable land use practices in the watershed would negatively affect the reservoir storage capacity, clog water intakes by sediments during rainy seasons, and reduce the water supply to the increasing population downstream.

The Sasumua reservoir is owned and managed by the Nairobi City Water and Sewerage Company (NCWSC). Owing to the need to conserve source watersheds and contribute towards sustainable management of farmlands, the company is represented in the governance of the Water Fund by both the board of management and the board of trustees. The company further contributes indigenous tree seedlings for planting in farmlands and forests.

