Umande

Rainwater Harvesting Project

By GHARP/KRA Secretariat

The semi-arid region north of Mount Kenya has been experiencing the impacts of climate change related to recurring droughts and leading to environmental degradation; declining water resources; food insecurity; and diminishing sources of household income. Kenya Rainwater Association (KRA) and the Umande community formulated a community-based project to mitigate the impacts of climate change on their livelihoods and environment.

In their efforts to address the problem, affected community members in the area formed the Umande Rainwater Harvesting Project (URWHP) to mobilise resources, both internally and from external support agencies. This is a community-based organisation (CBO) comprising 48 individual self-help groups from across Daiga and Ontulili divisions, in Laikipia East. URWHP approached GHARP/KRA Secretariat for assistance in proposal development to address the main impact of climate change – diminishing water resources – through increasing their community capacity to harvest, store, and manage rainwater for productive uses.

With the support of the UNDP Global Environment Facility/Small Grants Programme (GEF/SGP), KRA is currently implementing a community-based catchment approach to climate change mitigation – the project will last for 15 months. This project aims to expand on the on-going European Union (EU)/Skillshare

Farm pond, lined with ultra-violet plastic lining supplied by A-Plus Limited, Laikipia West district. Source: GHARP/KRA.

(Left)

Farm pond, lined and filled with water, waiting the roofing stage, Laikipia West district. Source: GHARP/KRA

(Right) Completed farm pond, Laikipia West district. Source: GHARP/KRA.

International/GHARP/KRA project on integrated rainwater harvesting and management (RHM) systems and complementary technologies

The project is addressing climate change mitigation measures within the Ontulili and Sirimon river sub-basins. It aims to build the capacity of the Umande community to mitigate the impacts of climate change through the introduction of 'green energy' for pumping and purifying water; on-farm micro-irrigation systems (farm ponds and drip irrigation systems) for diversifying crop production and increasing household incomes, seedling production, and tree planting; and promotion of energy-efficient cook stoves. The technological package incorporates capacity building; improved land and water management; renewable energy; environmental conservation; and sustainable livelihood systems – based on RHM and complementary technologies.

One of the major project components is the construction of the 32 farm ponds, which can store 50,000 - 72,000 litres of water each during the wet season - this can then be utilised efficiently during the dry periods to irrigate vegetables and increase crop yield.

KRA have designed the ponds carefully to ensure they are lined to prevent seepage; they are roofed to prevent contamination, evaporation, and risk of children and small animals drowning; and the water is filtered before entering the pond to ensure cleaner water. The ponds collect water from surface water runoff and from the roof guttering.

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KRA favours the use of A Plus Ltd dam-liners to line their farm ponds and they have been using them with great success for the last seven years. The liners are ultraviolet-resistant so they are not destroyed by direct sunlight. They are strong and robust so they prevent seepage of water from the pond into the ground below. The cost is affordable for the community members and GHARP/KRA at Ksh.260 per m2 after VAT exemption by the Kenya Revenue Authority GHARP/KRA also receives a discount of five percent and the liners are guaranteed for more than ten years.

Once water is collected in the pond, a farmer can use a low-head drip irrigation bucket kit to ensure that crops are watered in the most efficient manner. Drip irrigation is a micro-irrigation method where low-pressure water is allowed to drip slowly into the root-zone through emitters spaced at pre-determined intervals (e.g. 15, 30, 45 and 60 cm) depending on crops spacing requirement. For low-head drip irrigation systems, water pressure is created by raising the supply container (e.g. bucket, jerrican, and tank) between 0.5 - 1.5 m or connecting the drip system to a pressured water supply. Drip irrigation is the most efficient method of irrigating, because the water soaks into the soil before it can evaporate.

Community members have high hopes for their farm ponds and hope that they will contribute towards becoming self-sustaining and able to increase their vegetable productivity. Purity Wangoi has lived in Daiga division for many years with her husband and three children. She benefited from a GHARP/KRA farm pond in 2009 under the EU/Skillshare project. Before the project, her land was very dry but since the construction of the pond the family has seen a vast improvement.

'Since the farm pond, we have grown many more potatoes which the locals buy. The yield is much better and we have plans to expand in future.' Wangoi's husband, described the impact of the farm pond

The community excitement and expectations were captured by the URWHP Committee Secretary, Mr. Charles Kuira who said: 'People are very eager for the new farm ponds] and they are very happy because now the problem of water will be greatly reduced.'

(Top) Vegetable garden under low-head drip irrigation system,

Laikipia West district. Source: GHARP/KRA.

(Bottom) Purity Wangoi stands in her Shamba with her daughter Miriam, Daiga Divison, Laikipia East district. Source: GHARP/KRA.

Some of the URWHP committee during a monitoring visit by GHARP/KRA Secretariat staff. Source: GHARP/KRA

They are already aware of the anticipated project benefits and impacts. One of the farmers, Mr.Gikandi indicated: 'I had lost hope in farming because of the persistent drought that destroyed my crops before maturity…thanks to KRA and Almighty God because I will not need to rely on food relief anymore.'

For more information contact GHARP/KRA, email: gharp@wananchi.com or website: www.gharainwater.org. Become a fan on Facebook: www.facebook.com/GHARP.water and follow our updates on Twitter: http://twitter.com/GHARP.rainwater.