

Potential for community based adaptation to droughts:

Sand dams in Kitui, Kenya.

G-C M Mutiso et al

~~Building sand dams to conserve water~~

In Kitui, eastern Kenya, the Sahelian Solution Foundation is helping communities to build small-scale sand dams. This indigenous technology helps people to access water for domestic and agricultural use during the region's long dry seasons.

The dams are concrete weirs built across seasonal river beds. They capture sand as it is carried in torrid river water during the short, intense rainy seasons. The captured sand stores millions of litres of water upstream of each dam.

Livelihoods in Kitui are under increasing stress as a result of unpredictable rainfall patterns and increasing desertification. This water scarcity is the major barrier to development in this region, with climate change making water even scarcer.

But sand dams are increasing the adaptive capacity of smallholder farmers. Over the past 10 years, the Sahelian Solution Foundation (SASOL), a local non-governmental organisation, has provided over 100,000 people with better access to water through building sand dams, making communities less vulnerable to droughts.

Benefits from sand dams

Analysis of data collected in Kiindu catchment shows that after the sand dams were built, access to water improved. There was an increase in domestic water use of about 50 percent, and a doubling of agricultural water use. Farmers rapidly shifted to growing water demanding crops such as tomatoes, onions, fruit trees and kale.

These results are similar to the study of [Rempel et al. \(2005\)](#). This study, also in the Kiindu catchment, showed that the percentage of households growing irrigated crops rose from 37 percent before dam construction to 68 percent afterwards. From these households, 50 percent sold their harvest, earning between 1000 and 13,000 Kenyan Shilling (Ksh.) per year (US\$ 13-175). ([de Bruijn and Rhebergen, 2006](#)).

Challenges

The socio-economic indicators show that sand dams are a successful way to adapt to drought. However, there are still challenges with this technology.

- The technology is labour and physical capital intensive; most local communities cannot implement it without external help.
- Despite its cultural acceptability, this water harvesting technique has not been widely replicated in other areas, probably due to high costs of materials, the labour involved, and limited technical skills.
- Due to the prolonged drought, many sand dams are now drying up.

Recommendations

The government and local organisations should consider the following:

- Increase public awareness about climate change impacts, and encourage people them to implement available adaptation options, for example planting drought resistant crops such as sorghum, cow peas, cassava and sweet potatoes.
- Develop and promote agricultural rainfall risk insurance schemes.how?
- Improve access to natural water sources, for example by sinking boreholes for drinking water.
- Create seed and food banks to ensure the safe-keeping of harvested produce.
- Promote local savings and credit, for example encouraging financial institutions to provide credit in a timely manner and at low interest rates for providing money to farmers to build sand dams

Kitui District, Kenya

Kitui District is a semi-arid region 150 km east of Nairobi. The total land area is approximately 20,000 km², including 6,400 km² in Tsavo National Park. The area is characterised by highly erratic and unreliable rainy periods.

The main economic activity is rainfed agriculture. Irrigated agriculture only takes place on small plots on the river banks and water availability is often the limiting factor for sustainable agriculture development. During prolonged dry periods the farmers are dependent on relief food from donors. In 2007 and spring 2008, for example, up to 50% of the inhabitants of Kitui received food aid Besides farming the

main economic activities are charcoal burning, brick making and basket weaving. During periods of prolonged drought women and children walk up to 10-20 km and in search of water.

Take out

Over 450 sand dam sites have been developed in Kitui, bringing water closer to households serving up to 200,000 inhabitants.

Source

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