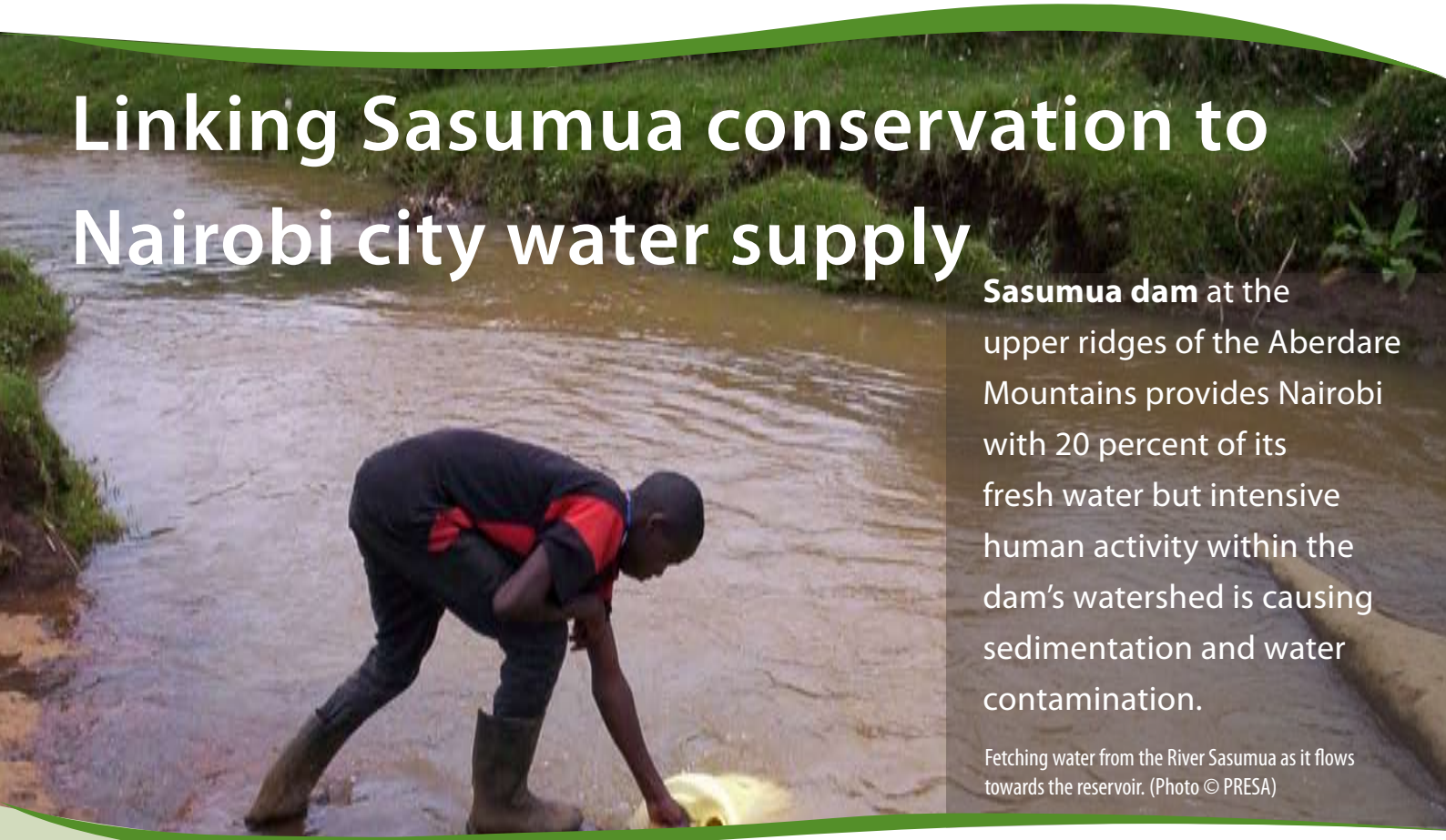
PRESA

Linking Sasumua conservation to Nairobi city water supply



Sasumua dam at the upper ridges of the Aberdare Mountains provides Nairobi with 20 percent of its fresh water but intensive human activity within the dam's watershed is causing sedimentation and water contamination.

Fetching water from the River Sasumua as it flows towards the reservoir. (Photo © PRESA)

PRESA - Pro-poor Rewards for Environmental Services in Africa is working at sites in Kenya, Tanzania, Uganda and Guinea to facilitate fair and effective agreements between stewards and beneficiaries of environmental services. Voluntary, conditional and negotiated agreements can reward poor farmers for good land use practices, while ensuring a clean and sustainable supply of environmental services for local and global communities.

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Built post-independence, the Sasumua dam in the upper ridges of the Aberdare Mountains provides Nairobi with 20 percent of its fresh water. However, intensive human activity within the dam's watershed is causing sedimentation and water contamination.

Water quality and allocation are fundamental issues in the area, resulting in discontent and mistrust between water managers and farmers. The current frameworks of policy and legislation have not been successful in resolving conflicting interests between those living in the watershed and those consuming water in far away towns.

The Pro-poor Rewards for Environmental Services in Africa (PRESA) project is helping local communities play a larger role in the management of the Sasumua catchment. PRESA sees good opportunities for Nairobi's water consumers and managers to support restoration of the watershed.

An ecosystem in danger

The Sasumua watershed covers about 10,700 ha, about two-thirds of which is farmed by smallholders mainly producing horticultural crops for the Nairobi urban market. The rest is intervened forest reserve used by many households to graze cattle and to collect fuel wood. The top end of the watershed borders the Aberdares National Park.

Pollution from small towns and farms results in a high bacterial count in rivers, abnormal acidity levels and a dangerous concentration of toxins. The major pollutants are soil, plant and animal waste, municipal waste, as well as runoff from industrial activities around rivers.

Pollution is expensive. Preliminary studies indicate that the Nairobi City Water and Sewerage Company spends approximately 10 million Kenya shillings a year (approx US$130,000) in water purification and desilting clogged intakes. These funds

could potentially be redirected to other activities, such as upgrading or expanding the water distribution network or for watershed protection.

Each day, individuals make land use choices that affect the quality of water to Nairobi city. Unless they are included in a watershed management plan, land owners will see no economic reason to modify how they make use of their property. Rewards for environmental services at Sasumua must be closely integrated with land use planning.

Opportunities and challenges for PRESA

The World Agroforestry Centre (ICRAF) is the main PRESA implementing party at the Sasumua site and is joining a water catchment programme by the National Environment Management Authority.

ICRAF is collaborating with Jomo Kenyatta University of Agriculture and Technology in studying the effects of human activity on the watershed. The work includes participatory sampling of soil and water, mapping of hydrological sub-basins and mapping of land use patterns. Trends in settlement and land tenure over past decades will also be analysed.

So far, the research team has found high levels of heavy metals like lead, iron and cadmium even though the area is predominantly rural. Heavy metals have serious effects on human health and cannot be removed through the simple and most common water treatment techniques, such as chlorination or boiling.

The findings will enable PRESA scientists to set priorities for tackling sedimentation by working with the community to establish the best means of durable co-existence with Nairobi's water authorities. Identifying the sources of heavy metals for corrective action is another priority. PRESA is coordinating a series of stakeholder meetings with local groups and authorities and which will inform the development of a catchment management plan.

PRESA will explore policy options to raise environmental awareness and spur discussion on new regulations and technologies for pollution control and supply of clean water.

Sasumua dam and its surrounding catchment area. (Map © M. Mäkelä - World Agroforestry Centre)

Partners

- World Agroforestry Centre (ICRAF);
- National Environment Management Authority (NEMA) of Kenya
- Jomo Kenyatta University of Agriculture and Technology

Stakeholders

- Local farmers organizations
- Nairobi City Water and Sewerage Company
- Water Resources Management Authority
- Athi River Water Services Board
- Kenya Forestry Service
- Ministry of Livestock.

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This programme is implemented by the World Agroforestry Centre, with funding from the International Fund for Agricultural Development, the European Commission and the Government of Finland. The views expressed in this publication do not necessarily reflect the views of the funders.