espa
ecosystem services
for poverty alleviation

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About this project

Name

Swahili Seas.

Principal investigator

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Partners

Kenya Marine and Fisheries Research Institute.
Kenya Forest Service.
Earthwatch Institute.
Aviva.
Bangor University.
Birmingham University.
Edinburgh University.

Time frame

January 2011 – March 2013.

Objective

This project pioneered new ways of studying, evaluating and managing mangroves through a carbon credit project and assessment of Kenyan mangroves' economic value. The work built local capacity for these activities and offers lessons to groups working in other ecosystems.

Summary

'Carbon credits' often reward industry or large landowners for reducing the global greenhouse gas load. Could such programmes be designed to help the rural poor preserve the ecosystems they rely on? This ESPA project has established Mikoko Pamoja ('mangroves together'), the first community-based carbon credit project for mangrove forest conservation. Mikoko Pamoja is demonstrating how to run such community based schemes and channel funds back to local villages, whilst meeting the expectations of the international carbon market. Innovative solutions from the Kenya-based project, such as a new carbon accounting scheme, may help similar initiatives spread through the developing world. For Kenyan policymakers, the research team has mapped out the potential value of mangroves across the country and the intensity of the threats that they face, and is talking with officials about how the Swahili Seas approach could fit into the UN's REDD programme. An East African policy forum (EAFPES) has been created to exchange information on related work across the region.

Mangroves to market

The first mangrove carbon credit project is assessing coastal forests' potential in new ways

Some of the poorest people on Earth rely on the mangrove forests that fringe the East African coast. Bridging sea and land, the trees provide storm protection and fish nurseries as well as terrestrial goods, such as firewood.

And mangroves offer another service to the globe: even more than terrestrial forests, they fight climate change by sucking carbon out of the air and storing it safely underground. But 30–50 per cent of all mangroves have been cut down or burnt in the past half-century, placing them among the Earth's most threatened ecosystems. Considering the value of these coastal forests, their continuing destruction is one of the world's great market failures.

Swahili Seas – an ESPA-funded project – is working to counter this loss and help local people get the most out of mangroves. Centred in southern Kenya's Gazi Bay, researchers are exploring new ways to demonstrate the forests' worth and tap their carbon storage potential to benefit poor coastal communities.

Earlier work in Gazi Bay, led by James Kairo of the Kenya Marine and Fisheries Research Institute and Mark Huxham of Edinburgh Napier University, discovered how to restore cleared mangrove stands – even in areas where salty stumps have stood lifeless for 40 years. Now, the team is collaborating with an international 'carbon credit' scheme to sell the carbon storage created through mangrove reforestation and conservation.

Pioneering

Swahili Seas has pioneered independent accreditation of mangrove carbon storage, based on the researchers' careful measurements of Kenyan carbon stocks, and has used new legal instruments to allow community tenure-ship of these government-owned forests. The ESPA-funded demonstration project, launched in 2012, employs Gazi residents and volunteers from international NGO Earthwatch to restore mangroves and prevent deforestation over 615 hectares of coastline.

Income from carbon credits, worth US$13,000 each year, will fund continued conservation as well as village improvements chosen by the community. A village council, established to set the project's spending priorities, has already built a new school room using charitable funds raised by Swahili Seas.

It might seem obvious that carbon trading could fix the market failure over mangroves. But few programmes have managed to secure carbon credits for small-scale forestry, and Swahili Seas sought to meet strict international standards while also following local guidance to ensure the poor would benefit. Their practical solutions, including a novel carbon accounting method, may help similar projects elsewhere get underway.

Visiting policymakers and practitioners are able to explore this working example of ecosystem services harnessed to improve poor people's welfare. Swahili Seas has already set up an East African policy forum (EAFPES) to exchange information on related projects.

Risky

Swahili Seas is also helping Kenya's government visualise the value of mangroves. The project's researchers used freely accessible satellite photos to track coastal deforestation, finding that 18 per cent of all Kenyan mangroves have disappeared since 1982. The historical data revealed risk factors, such as proximity to roads and hotel development near forests. Now the group has mapped all the forests mangroves to reveal which ones are under the most pressure and have the highest value.

Presented on a user-friendly website, the map of high-risk, high-value forests highlights conservation priorities at a glance. Other Kenyan programmes will be able to use the interactive site to assess their own projects. And since Swahili Seas ground-truthed the satellite data and showed its reliability, conservationists across the developing world could replicate the mapping approach.

In addition, this project has used ESPA funding to train Kenyan ecologists in socioeconomic analysis and geographic information systems, as well as offering bespoke business training for the Gazi Bay carbon scheme. The added local capacity leaves Kenya better able to identify threats to people's livelihoods and respond to international opportunities for conservation financing; the Kenyan government is using the project's data to inform their national planning.

One such opportunity is developing from global climate change negotiations. Swahili Seas hopes to show how small, community based projects – in Kenya and worldwide – could fit into the UN's programme for reducing emissions from deforestation and forest degradation (REDD). Researchers and Kenyan forest managers are discussing steps to turn vulnerable mangroves into profitable REDD sites. Using lessons from Gazi Bay, many more communities could reap increasing value from healthy coastal forests.

Next steps

A Kenyan sociology student will analyse the demonstration project at Gazi Bay – describing how the management of mangroves works, how different groups engage and benefit, and how this project can inform others in the region.

The team is developing new techniques for assessing mangroves' economic value beyond carbon. By measuring the use of resources such as fuelwood, timber, crabs and shrimp at several sites, as well as asking local people about the value of their mangrove forests, researchers are learning how to predict the richest areas – which can then be incorporated into the national mangrove maps.

New knowledge

- Swahili Seas offers a working example of ecosystem services harnessed for the benefit of the poor, using carbon credits to raise money for community payments.
- Swahili Seas' newly devised carbon accounting method could help other small-scale forest conservation projects secure income from international carbon markets.
- Having carefully measured carbon storage, researchers have used satellite images to assess the carbon-market value of all of Kenya's mangroves along with the risks that they face. By confirming these projections on the ground, they show that groups elsewhere could also use free data to put a price on forests.

Creating impact

- The community-based forest programme will bring in US$13,000 a year to support continued conservation, as well as local improvement projects planned by a village council.
- The project's interactive maps of high-risk, high-value mangrove forests will help Kenyan policymakers to see conservation priorities at a glance.
- Kenyan scientists have learnt new skills such as socioeconomic analysis and mapping of satellite data, with other participants receiving bespoke business training. The expansion of local expertise will help the country take advantage of new opportunities such as the UN's REDD programme.

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