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Flood recovery, livelihood protection and mangrove reforestation in the Limpopo River Estuary, Mozambique

Background

In the year 2000, heavy rains in the upper reaches of the Limpopo River caused massive flooding in its estuary basin on the Mozambican coast. The river widened from around 200 meters to several kilometers, drowning the surrounding mangrove forests for 45 days, and causing severe degradation, uprooting and dieback.

The event had serious socio-economic, as well as ecological, implications. The mangrove forests were already somewhat degraded before the flooding took place. But they still provided important habitats for shrimp and crabs, nurseries for fish, and a reliable source of harvestable wood: all resources that local community members depend upon for their livelihoods.

In 2007, the nearby Centre for Sustainable Development of the Coastal Zones (CDS-ZC) – an autonomous institution under the Ministry of Land, Environment and Rural Development (MITADER) with a mandate to provide technical assistance to local

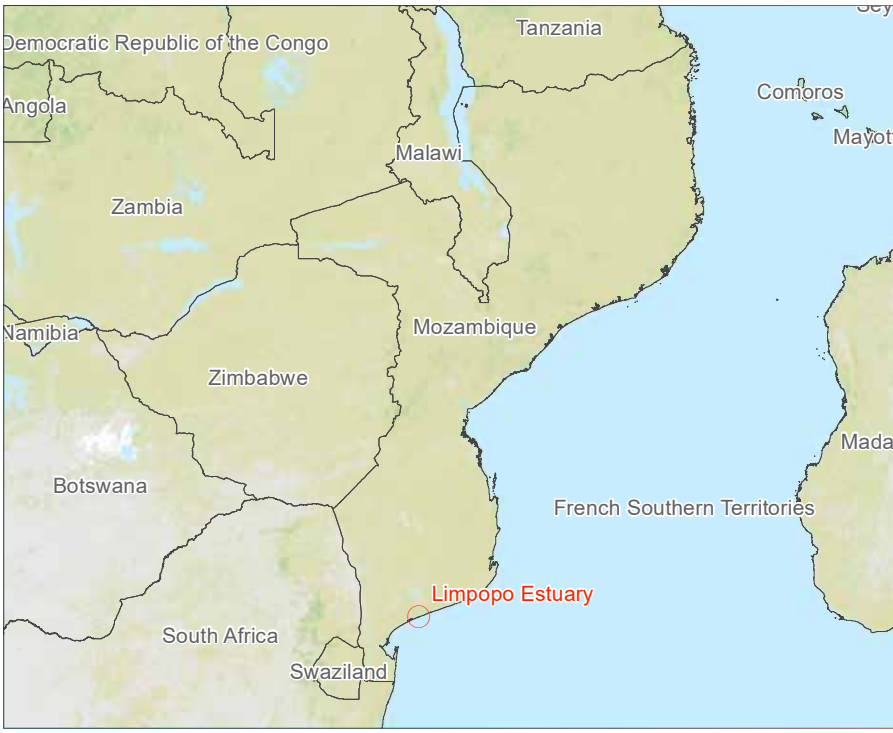

Figure 1. Location of mangrove rehabilitation site.

communities and promote conservation – came to Limpopo to conduct a socio-economic study of the area, and met with community members. Within this forum, Vasco Mula, a leader in the Zongoene village, expressed interest on behalf of his community in gaining support to restore and manage the mangrove ecosystem, in order to regain lost livelihoods.

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>
> – Agostinho Nhanzimo
> Community Leader, Limpopo Estuary, Mozambique

Taking action

So, CDS-CZ began baseline mapping of mangroves in 2008. They then gathered an initial action team, including Provincial Directorate of Agriculture staff and 59 community members from the local Mahielene village, to restore the channels that, before the flooding, had connected the forests with the ebbs and flows of the tide.

Next, in 2010, community members led the establishment of a mangrove nursery. CDS-CZ supported the group by providing training on nursery and replantation techniques, and resources such as watering cans, plastic pots, machetes, hoes, buckets and boots. The nursery cultivated six varieties of mangroves, and produced a total of 168,367 seedlings by 2013.

Replanting also began in 2010. Planting campaigns were used as a way to pique wider community interest in the work. Around 200 community members participated in several campaigns; as an incentive, each participant received 60 Meticais (US$2) for every 120 seedlings they planted.

Ten community members were also employed in paid roles – which persist to this day – to do the daily work of tending to the nursery, conducting replanting, monitoring the tidal channels, and protecting seedlings from grazing animals such as crabs.

CDS-CZ also helped introduce a number of livelihood-generating activities, such as crab fattening, tilapia farming and mangrove honey production. This helped community members to shift from activities like timber harvesting and cattle grazing in the areas that were being reforested and conserved, towards more sustainable practices, says Henriques Balidy, ecologist and CDS-CZ's Head of Distribution. Community members ultimately imposed a ban on forest product extraction in the reforestation zone, says Salomão Bandeira, a marine botanist at Eduardo Mondlane University in Maputo, which reflects their commitment to the project's advancement.

Photo 1. Replanted mangroves in the Limpopo Estuary.

Perspectives on success

By 2013, 100 hectares had been reforested. Then, another serious flood inundated the estuary. It impacted the reforestation effort by killing seedlings of below a metre in height, but the impacts were not as serious for the region as the 2000 floods.

Agostinho Nhanzimo, a community leader in Mahielene, attributes this in part to the reforestation effort. “After the 2000 flood, the area was totally destroyed,” he says. “But thanks to this project, when the next big flood came through 12 years later, the forest was already quite developed, we came out a lot better off.”

He says that several species of fish that disappeared from the river following the 2000 flood have since returned. “Before, the river was deserted,” he describes. “But now, in the places where there is new mangrove cover, it’s more sheltered, and it’s good for the fisheries. We catch lots of fish, crabs and shrimps there now.”

“So the community sees it as a very valuable project,” says Nhanzimo. Balidy agrees: after experiencing first-hand the devastation of the 2000 flood, and the economic and ecological benefits incurred through restoration, community members “know the value that this ecosystem represents for their lives,” he says.

Strong local leadership was key in motivating and mobilising high numbers of community members to participate, adds Balidy. The collaboration between local people, CDS-ZC and other partners in the replanting effort was also particularly effective: “we formed a bond, and created a forum for better understanding of the relation of the community with nature in the estuary and its surroundings.”

The majority of participants in the reforestation efforts are women, says Nhanzimo. Why? Due to the scarcity of opportunities to earn an income locally, he explains, the communities’ men are often away working in South Africa and other places. “So the women are more vulnerable, because they stay in Limpopo and don’t have secure livelihoods.”

Most women cultivate subsistence crops on machambas (plots of land) around the estuary. But without healthy mangroves to hold the land together, the machambas are vulnerable to salinization, which tends to inhibit crop growth. Once the women understood these links between healthy mangroves and machamba productivity, “they embraced the project wholeheartedly, and the possibilities it offered for helping the whole community to thrive,” says Nhanzimo.

Challenges

One of the practical challenges for the project, says Balidy, was the threat posed by grazing crabs, which killed off a significant number of mangrove seedlings at the beginning of the replanting effort. The team solved the problem by covering the seedling stems with reeds, and monitoring carefully. Overall, the seedling survival rate was above 74%.

Balidy lists tenure security as an important issue to resolve going forward. The Limpopo Estuary is technically owned by the State, says Bandeira, though in practice local communities have a reasonable amount of control and ownership of the resources within it, and largely regulate extractive activities such as fishing and timber harvesting. But as the project grows and people invest more time and resources into it, formalizing management and usage rights will be an important step, says Balidy.

Nhanzimo says that finding sustainable financing is a continual challenge. The project has been supported by a number of donors over the years, but funding flows can be irregular, which doesn’t fit well with ongoing work that needs to be done on a daily basis. “We can’t have people doing the work now, and then not getting paid until much later on,” he says.

Scaling up?

So far, the reforestation effort has covered about 50% of the area that the group hopes to restore. The remaining half is the most degraded part, and as such will be the most difficult. Nhanzimo says his community would love to accelerate the project and cover this area as quickly as possible.

"We need help," he states. "Our communities here are very worried about the suffering that we have here. We are in a very poor area, and I am sure that if we don't do the work of reforestation very soon, the degradation will be worse."

Community members hope that Limpopo's rehabilitation success will be expanded to other regions of Mozambique, where mangrove degradation is yet to be addressed with similar levels of community engagement.

To grow the work, secure funding is required. As such, Nhanzimo and Balidy agree that mobilising more partners will be crucial. "Whoever supports this area, is supporting all of Africa," pronounces Nhanzimo. "For example, the shrimp that is born here migrates to Maputo, to South Africa, to lots of other places. So if these mangroves are well-conserved, there will be advantages for all of Africa, and indeed for the whole world," he says.

Story was developed by Esther Mwangi (CIFOR) and Monica Evans
Photos by CDS-ZC

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