ENERGY-EFFICIENT COOKSTOVES

Mangrove Best Practices

Wetlands INTERNATIONAL

The issue

Fuelwood from the surrounding mangrove forests is the principal source of energy for households in Lamu, Kenya. But traditional cookstoves, widely used by communities, are extremely inefficient, requiring a fuelwood-intensive process that generates significant waste – not to mention harmful indoor smoke. As a result, large quantities of wood are being taken out of Lamu's forests, harming the nearby mangroves and terrestrial vegetation, and threatening their long-term sustainability.

THE SOLUTION

When less fuel is used in cooking, less pressure is put on mangrove forests. Working with local partners, Wetlands International launched a successful initiative to introduce improved, energy-efficient cookstoves in Matondoni Village, before rolling them out more widely across Lamu Delta. Following an awareness-raising campaign on the benefits of efficient cooking, the community-led project is already helping 3,010 people, significantly reducing the pressure on mangrove forests and generating big cost-savings for local households. The new cookstoves also reduce indoor air pollution, boosting family health and safety and enhancing social cohesion.

"I have always used the traditional cook stove and it consumed a lot of wood. Now, I see the benefits of using the improved cook stove. The food cooks well. I can cook much faster. I now use less fuelwood with this new stove and it doesn't produce any smoke. No one wants the traditional cook stove. Everyone loves the new stoves. Everyone wants to cook from them."

Sofia Shee,
community member

The process

Our work in Matondoni Village followed a successful staged process that can be adopted in other areas:

1. **Scoping survey:** Identify the most effective cookstove models currently in use in the region; assess their efficiency, cost-effectiveness and sustainability; choose the best model overall for the initiative to adopt.
2. **User group:** identify the most vulnerable areas and engage communities reliant on traditional cookstoves to raise awareness of improved models, ensuring their endorsement and buy-in for the initiative.
3. **Development:** Recruit local artisans to help design, develop and produce improved cookstoves, ensuring they remain affordable and accessible to community members.
4. **Capacity-building:** Train community members on how to build, instal and maintain the improved cookstoves – in Matondoni we trained seven women and eight men to build the cookstoves and keep them functioning effectively in the long term. The training also raised community awareness on sustainable mangrove conservation and management.
5. **Cost-sharing:** The cookstoves were installed on a cost-sharing basis, with the community contributing sand and cement. This arrangement fostered a sense of ownership and encouraged better care and maintenance, increasing the cookstoves' durability and cost-effectiveness.

6. **Distribution:** Distribute cookstoves to those with highest need and who use mainly fuelwood from mangroves. In total 53 households in Matondoni, 41 in Pate and 10 across five wards (Hindi, Mkunumbi, Mpeketoni, Pate and Shela) are now using the new stoves.
7. **Launch of woodlot initiatives**: Support communities living in mangrove areas by providing sustainable sourced timber from Casuarina and Neem trees. These trees, which mature in 3-5 years for firewood use, offer a long-term alternative to harvesting wood from mangrove forests.

Impact in the field

Positive change has been immediate since implementation. The more efficient stoves require less wood (1 bag every 7 days instead of 1 bag every day), which is saving families money and reducing deforestation. Users say the stoves are easier to light, maintain heat better, cook faster, and are easy to maintain. They also produce less smoke, reducing indoor air pollution, as well as the risk of domestic fire accidents. We're currently working on a joint research study with the Kenya Forest Service, Kenya Marine and Fisheries Research Institute and Kenyatta University to quantify the ecological and socioeconomic impact of the new cookstoves.

'The traditional cook stoves have a number of difficulties. Our fuelwood came from the mangroves. We took a boat, cut them, and brought them back in bungles for sale. Sometimes the pot slipped off and the food spilled as a result of the instability of the stones. Traditional cook stoves produce a lot of smoke. And it is possible for a child to grab the fuelwood, which is very dangerous."

Mohamed Bili,
Matondoni Village Headman

'So far my team has built eight new stoves. We used to cut a lot of fuelwood from mangroves and through this project I have learnt how to conserve mangrove forests by reducing our use of fuelwood. I've given this opportunity everything I have.'

Esha Abdalla Ali,
cookstove trainee

Contact us

To find out more about energy-efficient cookstoves, and how Wetlands International can support their introduction in mangrove areas, please get in touch with **Therese Musabe**, Programme Director Mangrove Capital Africa, Wetlands International.
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Lessons learned

Our experience in introducing energy-efficient cookstoves in Matondoni village highlights some key practical considerations for future initiatives:

- Involving the local community in the process **from the beginning** is paramount; building trust and demonstrating commitment are vital.
- Working with the most motivated community members first and **ensuring their needs** are met leads to a natural growth in demand for new cookstoves.
- Demonstrating how to use the new stoves is best done **by community members themselves** after initial training by artisans.
- Utilising **locally available resources** to build the stoves makes them affordable and enables easy maintenance.

Replication and scalability

This is an extremely promising initiative for replication and scaling up, with the potential to make a big difference to sustainable forest management. Following the success in Matondoni village, demand has been so high at community and government level alike that neighbouring villages and other organisations are requesting our assistance to put their own schemes in place. It's a strong foundation to expand further across Lamu County, which is home to about 145,000 people and harbours 60% of Kenya's mangroves – in fact, the Lamu County Integrated Development Plan of 2023–2027 has included this initiative as a flagship programme to promote energy efficiency.

The approach is clearly suitable to be expanded into other countries, too. Findings from the local impact analysis currently underway will provide a compelling proof of concept to take to other mangrove areas, showing just how much of a difference energy-efficient cookstoves can make – on environmental, economic and sociological levels alike.

Key stakeholder groups can encourage further replication and scaling of the energy-efficient cookstoves approach in the following ways:

- **NGOs**: implement energy efficient cookstoves to reduce presssure on mangroves.
- **Funders:** Provide funding to expand the model, supporting local livelihoods, the health of local communities and reducing deforestation.
- **Governments:** Institutionalise energy efficient cookstoves in national conservation projects.