

MYANMAR MANGROVE RESTORATION



005 EDITION

Mangrove Restoration
Action Against Hunger
Myanmar Stoves Campaign
Hornbill Reintroduction

Coral Propagation
Forest Restoration
Soneva Namoon



MANGROVE RESTORATION

Mangrove forests are coastal guardians and play a vital role in ocean biodiversity. One of their biggest strengths lies in their ability to capture and store carbon.

The mangrove restoration project is being registered under VERRA and is expected to generate 1.5 million carbon credits.

The Soneva Foundation engaged Worldview International Foundation to plant 2.5 million mangroves in Myanmar, restoring 1,000 hectares of mangrove forests. 1.5 million mangroves have already been planted, with the rest to be planted in 2023.

Positive impact

2.5 million mangroves
to be planted

1,000 hectares

to be restored

1.5 million tonnes CO2

to be mitigated

1 NO POVERTY



13 CLIMATE ACTION



14 LIFE BELOW WATER



Mangrove planting in Kyon Chaik, Myanmar.

WHAT IS A MANGROVE?

A mangrove is a tropical shrub or tree that grows in coastal saline or brackish water.

Mangroves are salt-tolerant trees, also called *halophytes*, and are adapted to live in harsh coastal conditions. They contain a complex salt filtration system and root system to cope with saltwater immersion and wave action.

The word 'mangrove' is derived from the Portuguese word 'mangue' which means 'tree' and the English word 'grove' which is used for trees and shrubs that are found in shallow, sandy or muddy areas.

Left: Mangrove seedlings, Htan Chauk Pin, Myanmar.
Right: Mature mangrove forest, Kyon Chaik, Myanmar.



Mangroves play a key role in maintaining healthy oceans.



Why are mangroves important?

Mangroves play a key role in maintaining healthy oceans and are the only forest that grows in salt water, as a buffer between land and sea. This tree filters and cleans run-off and sediments and protects coral reefs and seagrass meadows, as well as providing the highest capacity to mitigate CO2, with permanent storage in the ground. Their ecosystem services are of the highest value for life on our blue planet.



Mangroves support sustainable coastal and marine ecosystems.



Mangroves help local ecosystems adapt and be more resilient, protecting nearby areas from extreme weather events, tsunamis, and sea level rise.



Mangroves increase sea food production by up to 50%.



Mangroves filter and clean the surrounding water in protection of coral reefs and seagrass.



Mangroves sequester five times more carbon compared to terrestrial trees. 80% of carbon is stored permanently in the soil, compared to 20% in the soil with terrestrial trees.



Each mature tree produces enough oxygen for four people.



Climate change has become a major cause of rising hunger around the world.






The success of mangrove restoration depends heavily on engagement with local stakeholders and on careful assessment to ensure that growing conditions will be suitable for the species chosen.

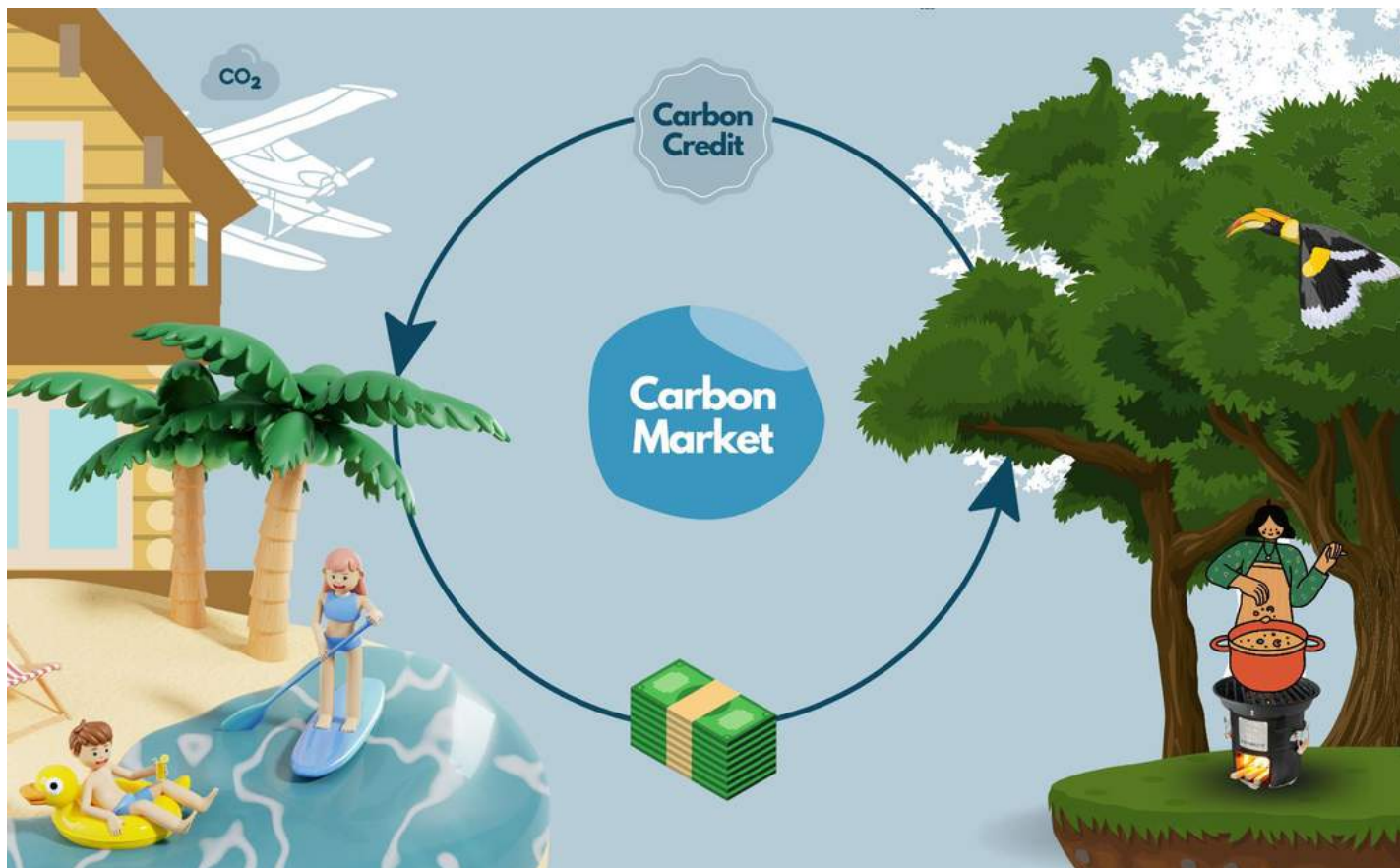
Our implementation partner Worldview International Foundation are restoring degraded mangroves in cooperation with the Forest Department in Myanmar and local communities in planting areas. Since 2012, they have planted 80 million mangroves and have restored 30,000 hectares of mangrove forest.

Over 600 hectares in the Yangon and Ayeyarwady regions have been planted for the Soneva Foundation, with another 400 hectares in Tanintharyi region being planted in 2023. Altogether, this will amount to 2.5 million mangroves.

Eight native true mangrove species are being planted during our restoration efforts, shown in the table to the right.

Mangrove species planted

	<i>Avicennia officinalis</i>
	<i>Rhizophora mucronate</i>
	<i>Rhizophora apiculate</i>
	<i>Bruguiera gymnorhiza</i>
	<i>Bruguiera sexangular</i>
	<i>Ceriops tagal</i>
	<i>Sonneratia apetala</i>
	<i>Sonneratia caseolaris</i>



How carbon markets work

Mangroves are powerful carbon sinks. They are highly effective in sequestering carbon.

Carbon markets turn emissions reductions into tradeable assets. These credits are generated from emissions reduction projects, such as our Myanmar Mangrove Restoration project. One carbon credit, which is verified by the recognised standard, VERRA, equals one tonne of CO₂ sequestered by the mangroves.

The carbon market allows the carbon

credits to be sold to companies to offset their emissions and reduce their carbon footprint. 50% of the credits sold will go directly back to the local community and to ensure the mangroves are maintained. The other half allows the Soneva Foundation to recycle its invested capital into new carbon abatement projects.

The carbon markets enable the Soneva Foundation to take an impact investing approach that makes a much more significant impression than if it had only funded a project.



In addition to mangrove restoration, the project supports numerous livelihoods and community development projects. Here are some of the project's achievements from its first year:

- 35 participants received training in producing efficient cook stoves and distributed 1,959 stoves in 14 villages. They earned USD 3.80 per stove.
- 106 crab nets were distributed to families in nine villages, which allowed them to earn income from fishing.
- The Basic Education Primary School in Boba village, Kyauk Tan, Yangon had its school road renovated, as well as a new main door installed, benefitting 21 children and 2 teachers.
- 45 households in the Kan Hlyer Shey village, Yangon area and Haigyi area, were given clay pots and fibre tanks for rainwater harvesting.
- Educational supplies such as computers, printers, tables, chairs and learning materials, as well as solar panels, were provided to schools.
- Pupils at Kone Tan school trained in environmental knowledge at an Environmental Youth Camp and Awareness Programme.
- A Revolving Fund was established to provide start-up capital to micro-enterprises, supporting 89 households in fishing, livestock, agriculture and small business ventures.

A better life with mangroves



Ko Zin Naing (39), a father of two children living in Yangon's Kyauktan township, has struggled to make a living as a fisherman since he was 11 years old. He had no steady income before starting to work on the Soneva Foundation's mangrove restoration project, which is implemented by the Worldview International Foundation in Myanmar.

As a result of mangrove destruction, his home village, Htan Chaukpin, near the gulf

of Mottama, is constantly vulnerable to storms, floods, coastal erosion and increasingly strong tides. Fishermen are often unable to go out to sea due to rising tides, and they saw the need to protect the mangrove forest.

The severe 2008 Cyclone Nargis was devastating for Ko Zin Naing, as it took his house, while his village has been regularly affected by water erosion. As a result, he realised the value and relevance of mangrove forests and chose to join the Worldview International Foundation to help support the growth of mangrove forests.

"To be honest, we had no idea that mangrove forests needed to be protected and how they help the ecosystem. We assumed that storms and tides were unavoidable natural disasters. This Soneva Foundation project teaches us how important mangroves are to protect us from natural disasters. I have learned a lot from working with Worldview, and I'm excited to



Ko Zin Naing dries his fish catch.

see how those mangroves grow in five years,” says Ko Zin Naing.

Employment

With Worldview International Foundation, Ko Zin Naing has a five-year contract to work as a forest ranger to monitor the development of mangroves that were planted as part of the Soneva Foundation project in 2022.

He receives USD 142 from the Worldview International Foundation, in addition to USD 95 of rice and oil for the first year. As a forest ranger, he acknowledges that he has much to learn from the technical staff, but he is confident in his ability to help the mangrove forests around his village thrive.

A total of 600 hectares of the Soneva Foundation's mangrove restoration project has been planted with 1.5 million mangroves, including Ko Zin Naing's village in Kyauktan Township.

During the plantation phase, the mangrove restoration project employed 200 villagers in Kyauktan Township, and some of the villagers continue to work with Worldview for the restoration stage.

Saving income

U Hlaing Htay, assistant field manager of the Worldview International Foundation, says there are currently four forest rangers who monitor the growth of mangrove forests in Kyauktan Township, and they check the forests three days each week.

“The forest managers must notify the technical team of any damage to the mangroves before continuing with the



"Thanks to the mangrove forest project, I can now support my children in whatever way they want," says Ko Zin Naing.

mangrove restoration. The restoration process begins in April,” he explains.

Ko Zin Naing is delighted to work as a forest ranger for the Worldview International Foundation since he can stay with his family and contribute financially.

"I'm thinking of buying a pair of gold earrings for my daughter and a gold ring from the money from my first job. I'm now saving money," he adds.

Importance of mangroves



Mangrove forests provide are very important and provide benefits such as protection against coastal erosion, biodiversity support, ecosystem services, livelihood support, and climate change mitigation.

Unfortunately, mangroves in Myanmar are threatened from overexploitation, used as firewood, with swathes of forest turned into agricultural land and aquaculture. In addition, the powerful Cyclone Nargis in 2008 had a devastating impact on the mangroves, destroying 38,000 hectares of mangrove forest, leaving 2 to 3 million people homeless and taking the lives of 140,000 people.

Luckily, Ma Khine Thazin's Htan Chaukin village in Yangon's Kyauktan Township was not too badly damaged at the time.

"Without mangroves, other villages were severely impacted by wind and waves. Strong winds blew across the area,

bringing 10-foot waves with them. Fortunately, there was no major damage in our village since the mangrove trees protected it," she says.

Natural barrier

The mangrove forests function as a natural barrier against coastal erosion by stabilising shorelines and trapping sediments with their roots. The dense canopy acts as a natural defence against powerful winds and waves,



"Without mangroves, other villages were severely impacted by wind and waves," says Ma Khine Thazin.

while the mangrove roots help to maintain the soil and stop erosion. This helps safeguard coastal areas from the impacts of storms and rising sea levels.

After the cyclone, Ma Khine Thazin recognised the value of mangroves, but she was unsure of the best ways to preserve the existing trees and help the forests grow and expand to better protect her village.

“I love to plant trees. I am happier now that I can plant trees to defend my village from natural disasters,” she says.

The mangrove forests support a wide variety of plant and animal species, including many migratory bird species, fish, crustacea and other marine life. The area also is home to endangered animals such as the Irrawaddy dolphin and the saltwater crocodile.

A gift from nature

However, a number of human activities, such as illegal logging, shrimp aquaculture and the conversion of land for settlements and agriculture, pose a threat to the mangrove forests. These operations affect the local communities' way of life, which depends on the forest for fishing and other resources, in addition to harming the ecosystem.

U Phoe Cho, a villager of Shwe Nyaung Pin village in Kyauktan Township, said that the



U Phoe Cho says that mangroves are priceless.



"I am happier now that I can plant trees to defend my village from natural disasters, says Ma Khine Thazin.

mangroves are priceless and essential, and should be protected by everyone.

“Mangroves are a valuable gift from nature. Water resources will be lost if mangroves do not exist,” he says.

Mangrove forests are being protected and conserved, in part through the creation of protected areas and community-based management initiatives, with the goal of ensuring the long-term wellbeing and sustainability of this crucial ecosystem.

“Let’s protect them. It is not only our job. That is applicable to everyone,” says U Phoe Cho.

Click on image to watch video





The Myanmar Stoves Campaign is a Soneva Foundation programme that distributes fuel efficient cook stoves to thousands of families. It is the first Gold Standard-certified carbon project in Myanmar.

Indoor cooking on inefficient stoves is a silent killer. Air pollution from domestic cooking is responsible for the premature deaths of over 4 million people a year worldwide, more than HIV/Aids and malaria combined.

Myanmar has one of the fastest rates of deforestation in the world, with most of the wood used for domestic cooking.

Each fuel efficient stove saves 2.5 tonnes of wood per year and reduces air pollution by 80 percent – improving the health and safety of the whole community.

The Myanmar Stoves Campaign has been successfully operating for ten years, together with our implementation partner Mercy Corps Myanmar.

Nearly 50,000 stoves have been distributed, benefitting 230,000 people. Below you will see the overall impact of the project.





Around 40 years ago, hornbills disappeared from Koh Kood, Thailand. It is said that hunting from migrant workers and some locals was the cause.

The Soneva Foundation is working with the Hornbill Research Foundation to reintroduce hornbills on Koh Kood in Thailand. The Hornbill is an important species for the island as it helps spread the seeds of bigger trees, which improves the biodiversity of the forest.

Six oriental pied hornbills have been released since May 2022. Currently we have two more hornbills in the enclosure waiting to be released.

The oriental pied hornbills are gradually discovering their natural instincts and have started to venture away from the enclosure area. So far, the oriental pied hornbills are staying fairly near the enclosure.

One of the couples have started to explore the artificial enclosures we have put up. The hope is that they make use of them during mating season, between January to June. With some luck there will be some Koh Kood-born chicks.



CORAL SPAWNING LAB



The Soneva Foundation Coral Propagation programme aims restore coral reef systems and create a coral hub for the Maldives.

The newest addition is the Maldives' first Coral Spawning & Rearing Lab, which was installed at Soneva Fushi in January 2023. The system is designed to replicate the natural environment on the reef to enable coral spawning.

The lab will supplement the existing one-hectare coral nursery at Soneva Fushi, which is one of the worlds largest using Mineral Accretion Technology (MAT).

Additionally, 28 micro-fragmenting tanks are under construction and are expected to be installed in Q2 2023.

The annual output of corals generated and out-planted is expected to be 150,000 coral fragments.



10,500

coral colonies out-planted

22,500

coral colonies rescued

150,000

coral fragments per year

14 LIFE BELOW WATER



ACTION AGAINST HUNGER

Shilpi Khatun is now self-sufficient with vegetables. We aim to help 480 more families achieve the same.

Around the world, 150 million children are missing out on meals and essential health and nutrition services. Childhood malnutrition is a potentially fatal health condition.

The Soneva Foundation has for the past three years worked with Action Against Hunger UK in Bangladesh to strengthen households' capacity for climate adaptive and resilient livelihoods to tackle food insecurity and under-nutrition.



"It feels good to get fresh vegetables," says Sabuda Begum.

Positive impact

830

households to be impacted

3,910

people to benefit



We have just extended this commitment for another three years. Our implementation partner, Action Against Hunger, is teaching families new skills and offering business training, as well as increasing their food production at home using new climate change-resistant farming methods. This dual action plan ensures that families can access nutritious food, either from their gardens or through their income.

We have so far improved the lives of 350 households, and aim to reach 830 households, positively impacting nearly 4,000 people.

FOREST RESTORATION

The 500,000 trees planted in Thailand a decade ago have now become a lush forest.

Deforestation is responsible for around 11 percent of global carbon emissions. Restoring forests is an important solution to reverse climate change and improve biodiversity.

The Soneva Foundation has in 2023 expanded its collaboration with Eden Reforestation Projects, with initiatives in Tingkulan, Philippines and Udayapur, Nepal, in addition to Matica Sede, Mozambique. The three projects will restore 3,700 hectares of natural forest by planting 4.7 million trees from a variety of native species by 2025.

A key component of these projects is to use indigenous tree species, based on the *mimbo* forest type, which are planted by the local community.

To date, the Soneva Foundation has funded 1.4 million trees that have already been planted in Mozambique and Thailand.



The team prepares seedlings at Matica Sede.

Positive impact

5.2 million trees

to be planted by 2025

4,000 hectares

to be restored

3.3 million tonnes CO2

to be mitigated

1 NO POVERTY



13 CLIMATE ACTION



15 LIFE ON LAND





SONEVA NAMOONA

Soneva Namoonaa is working closely with the local community.

Soneva Namoonaa provides a blueprint for how all Maldivian islands can phase out single-use plastic, introduce recycling and inspire a new generation of ocean stewards.

Soneva Namoonaa is a Maldivian NGO, funded by the Soneva Foundation, working to empower zero waste communities. It engages directly with seven islands in Baa Atoll, three in Noonu Atoll, and one in Haa Dhaalu. Furthermore, in the Noonu Atoll it has embarked on an atoll-wide project as a strategic and technical partner on waste management issues across 13 islands.

A water bottling facility – Soneva Water – in Maalhos, Baa Atoll, provides an alternative to single-use plastic bottled water to households, guesthouses and cafes. Construction of an additional water bottling facility on Kudafari in the Noonu Atoll is finished, with operations to start in Q2 2023. The water bottling plants are important initiatives to eliminate single-use plastic, accompanied by other engagements with

Positive impact

286 tonnes

recyclables collected in three years

423 tonnes

waste removed from 11 islands in three years

564,000

plastic bottles saved in three years

6 CLEAN WATER AND SANITATION



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



the same purpose, such as household water filter trials, reusable nappies and menstrual product awareness workshops and trials, as well as a recently formed, women-led second-hand resale market.

In partnership with the Ministry of Education, Soneva Namoonaa is currently in the second year of piloting the Fehi Madharusa (Green School) framework, an environmental education programme. Seven pilot schools are participating and co-designing the final version of the programme through their experience and feedback.

In partnership with the Maldives Swimming and Life Saving Skills Training School, Soneva Namoonaa launched a Shore to Open Water Series, training swimming and water rescue instructors on all Namoonaa islands, as well as encouraging community activities in and around the ocean.



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