



TEMWA
CARBON BALANCE

Temwa Carbon Balance Report

January 2024

Temwa Carbon Balance summary

Communities in Nkhata Bay North in northern Malawi are facing the ever-worsening effects of climate change: heavy rainfall is causing soil erosion, unprecedentedly long dry-seasons are affecting crop production, and the subsequent loss of income is leading to increased deforestation.

To tackle this, Temwa Carbon Balance offers organisations and individuals an opportunity to balance their CO₂ emissions through community tree-planting, sustainable farming and community-led management of local natural resources in the hard-to-reach villages of Nkhata Bay North. This now runs alongside Temwa's new Restoring Forests project. We have successfully planted **126,528** trees since 2020, with **33,542** seedlings planted between 2022-2023. This year, we are aiming to plant around **75,000** trees.

We are very pleased to report on the project's success, which has seen ever-increasing community participation.

Project context and aims

Around 90% of households in Nkhata Bay North are smallholder subsistence farmers, and 58% of people live below the national poverty line. The families in the area depend on being able to grow food, but are facing hardships due to the effects of climate change. Erratic rainfall, drought, flooding, strong winds, and crop pests are affecting food production and exacerbating vulnerability and poverty.

Extreme poverty forces people to use their resources unsustainably and leads to local deforestation, which erodes the soil, dries up water sources, and lowers agricultural productivity. This creates a self-perpetuating cycle resulting in worse environmental degradation, and food and income insecurity.

Temwa Carbon Balance supports community reforestation, sustainable livelihoods, and community-led stewardship of local natural resources. The scheme empowers communities to protect and manage their own resources sustainably, while diversifying livelihoods, restoring forests, halting land degradation, and improving soil health.



Recent Project achievements

Tree planting – In the 2022-2023 planting season, we successfully planted **33,542** trees. A total of **26** hectares of degraded land was covered with these out-planted seedlings, with **7** individual and **4** communal new woodlots being established. Fruit trees, water-retaining trees, agroforestry trees, and bamboo were prioritised as these are much less likely to be cut down for firewood. The seedlings included **5,000** fruit tree seedlings that were used to start fruit tree nurseries in two primary schools.

In the 2023-24 planting season, we are aiming to plant approximately **75,000** trees which is a significant increase on last year's number. These are a mixture of agroforestry and water-retaining tree species (Moringa, Msangu, Grilicidia, Keisha, Red Mahogany, Pine). We have also purchased **2,000** bamboo seedlings to establish **40** new bamboo woodlots. The bamboo tree releases **35%** more oxygen than equivalent trees, while restoring and stabilising the soil.

In August, we delivered polythene tubes and tree seeds to the Usisya Demonstration Garden, one agroforestry group and **7** individuals. The seeds spanned six types of tree species (Msangu, Grilicidia, Mvule, Keisha, Pine and Moringa). **50,000** of the tubes were given to the Usisya Garden and **25,000** to the agroforestry group and **7** individuals living in the Uplands area of Nkhata Bay North. To help ensure all the tree seeds were potted, **15** community members were recruited to support the work, and a new nursery manager was hired. Shades were erected in the nurseries to protect the seedlings, and a greenhouse was erected at the Usisya Garden.



In Autumn 2023, Malawi suffered from a prolonged dry period, with heatwaves affecting the survival of the more sensitive tree species such as Moringa trees. This meant that approximately **53,000** seedlings were successfully raised out of a target of **75,000**. To reach our target, we are now raising a further **17,000-20,000** seedlings that are currently being potted and are expected to germinate and be planted out in the coming months.

The rains have now arrived in Nkhata Bay North, and the planting season has officially begun. 3,000 seedlings have already been planted and we have 5 community tree-planting events planned in the coming weeks.



An additional **4,000** fruit tree seedlings are being purchased to be planted out along with the 696 that were successfully grafted from existing fruit trees by community members in the Usisya Demonstration Garden. We hope that this number will increase next year, as grafting and cutting techniques are mastered. This will ensure sustainability as it is more cost-effective and community members can learn to graft trees using fruit trees they already have.

As the 2022-23 planting season came to an end, we conducted mapping exercises to plan where the

new seedlings would be planted. Planning meetings were facilitated with nursery owners, who were advised to prepare pits for out-planting tree seedlings before the rains start. In collaboration with the local governance structures, **50** households sites in Bigha and Usisya have been identified as areas for tree planting intervention.



We have been closely monitoring the survival rates of those trees out-planted in 2023, and how well each forest is being managed, in order to prevent die-off. In September 2023, monitoring showed that an impressive **98%** of the planted seedlings survived the dry period.

The monitoring also showed that three in every five sites had fire breaks. However, only one in five had been properly weeded, so Temwa recommended that all sites should make this a focus in the coming months.

In October 2023, Temwa hired a new nursery manager who will be supporting the growing and monitoring of the tree seedlings going forward. We are also planning to pot the seeds earlier than usual, before the heatwaves begin in September. We hope these interventions will improve the survival rates of our seedlings as the climate crisis continues to dramatically impact weather patterns in Malawi.

Carbon balanced by Temwa Since launched in 2020	
Trees planted	130,528 trees
Potential carbon benefits ¹	13,053 tonnes of CO ₂

How has your support helped to date?	
Trees species planted	92,773 fast-growing and timber trees (pines, mahogany and acacia), 25,805 agroforestry trees, 3,700 water-retaining trees, 2,000 bamboo and 6,250 fruit trees
Planting locations	37 woodlots, 71 agroforestry farms, and 46 fruit orchards
Who is growing the trees?	99,397 trees grown by farmers and their families, and 31,131 trees grown in 11 community-owned forests

5,000 trees have been planted so far this season, including **2,000** bamboo plants. A further **50,000** seedlings will be out-planted in the coming months. Another **17,000-20,000** seedlings are currently being raised, to be planted at the end of the planting season. A further **4,696** fruit tree seedlings will also be planted this year.

Forest-Friendly Livelihoods - Temwa adopts a holistic approach to afforestation, ensuring the trees planted are protected by communities. This includes engaging community members in forest-friendly and alternative livelihoods in the targeted villages, such as beekeeping, wild mushroom harvesting, and

¹ As the trees planted are still in early stages of growth, this is an estimate of the amount of CO₂ that the trees will balance over 20 years. The calculation takes into account potential factors reducing tree survival over time, such as thinning, bush fires, plant diseases and felling. Once the trees reach adequate maturity, our carbon benefit assessment will be based both on current actual and long-term projected benefits.

growing cash crops. This diversifies family income sources, makes them more resilient to crisis, and reduces the need for reactive tree cutting as a survival strategy.



Community members have also been trained on using beekeeping in the forests to discourage the felling of trees. Since Jembe and Kanolo villages committed to including beekeeping as part of their natural resource management plans, and received training and materials, Temwa has been monitoring their progress with beehive construction. We have seen an improvement on construction of beehives among both of the 2 Village Natural Resource Management Committees (VNRMCs) who have been trained to build Langstroth and Kenyan Top Bar beehives. A total of **60** beehives (10 Langstroth and 50 Top Bar

Beehives) were constructed in September, registering an **18%** increase from last month. Jembe has constructed **25** beehives and Kanolo **35** beehives.

Through our monitoring and support visits, demonstrations were made on hanging of beehives with the **10** community members at Kanolo and **8** members at Jembe. In September, the beehives were hung in the community-owned and individually-owned forests. So far a total of, **45** beehives out of **85** beehives constructed have been hung in forests, and **11** have already welcomed colonies of bees.

Jembe Village is already enjoying the benefits of beekeeping, having harvested 5kgs of honey in October, worth MWK 30,000. While this initial batch was only used for personal consumption, they anticipate that the coming year will bring larger honey harvests which can be sold to increase household income.

Communities have also chosen to focus on planting fruit trees which provide a source of nutrition and income. Villages like the Yakwapula Village have already seen the benefits of fruit tree growing, and now have a nursery of mango trees.

As reported previously, in March last year, fruit tree orchards were established at Kaulasisi and Mzgora Primary Schools with **1,250** seedlings distributed to each including mangos, avocados, and guavas. The aim of the orchards was to improve the children's nutrition, as well as generate income from selling the fruit which will be reinvested into the school's fund, to help support uniform costs, building school facilities, and the feeding programme. A further **2,500** seedlings and polythene tubes were distributed to **23** households from the two primary school villages so that they too could establish their own fruit tree orchards.

Initially, the schools had struggled with protecting the seedlings from theft, and dry weather had affected their survival. After receiving additional training from Temwa in May on nursery management, the schools also recruited security guards to



prevent further theft. By the start of September 2023, **5** fruit tree nurseries were established including **2** nurseries in two primary schools, **2** village group nurseries and another at the Usisya Garden.

Stewardship of natural resources –The communities we work with have continued to show increased engagement with managing their natural resources, including weeding woodlots and forests, and building fire breaks helping ensure optimal growth of trees. Temwa works alongside local governance structures who are equipped to promote sustainable livelihoods and landscape transformation, increasing forest protection and sharing knowledge among peers.

Over the last year, we have witnessed an increase in community participation in tree-planting events, including an increase in female attendees and members of key governing structures. Temwa has continued to work closely with the District Council, facilitating visits to our tree-planting sites. Following review meetings with VNRMCs at the start of the year, monitoring showed a continued decline in cases of deforestation, with some months recording 0 cases.



Villages have been developing and implementing their own individual natural resource management plans.

Earlier in the year, review meetings were held to improve these plans and **12** new forest sites were identified for management and protection, including **11** individual forests and **1** communal forest.

In August, monitoring showed that these strategies were being well implemented. 100 leaflets detailing the new forest amendment act were produced and distributed to Bununkhu and Nyaphwere VDCs. **23** VDC members, **14** chiefs and **16** VNRMC members each received a leaflet. The Forest Amendment Act, adopted by the Nkhata Bay District Council in 2020, strengthens penalties for any act of destroying the forest either by felling trees, bush fires, timber and charcoal production.

Two training sessions were also conducted to familiarise the targeted beneficiaries with the amendment act. Through the orientation and leaflets provided, we anticipate that there will be an improvement on enforcement of community bylaws.

In September, Temwa, along with government officials, also introduced the act to **26** members of the Jembe and Kanolo VNRMCs. These members also received booklets for reference while carrying out their duties on protection of existing forests and woodlots.



Unfortunately, in September while temperatures were still very high, cases of forest fires were recorded on many of the forests in our catchment areas. In response, Temwa has supported our beneficiaries with making fire breaks to prevent fire spreading.

We are now seeing an improvement in the protection of established woodlots and existing forests. Out of the **11** established woodlots in 2023, **8** have been surrounded with fire breaks. In addition, out of the **21** identified forests for further protection in 2023-24 season, **7** have already been surrounded with fire

breaks. While Temwa provided technical support, the vast majority of this work was done by community members in Jembe, Dube and Chazeka villages, demonstrating a keen interest towards maintaining the community's own natural resources.

For example, in September, **25** community members from the Dube Village mobilised to create a fire break surrounding their **2** hectares of forest. According to the Chair of their VNRMC, Mr Kamanga, the community rely on the forest for firewood, poles and fruits such as Masuku. Therefore, they feel motivated to protect it.

At the end of the year in December, reported cases of forest fires continued to decline in both the old and newly identified forest sites. Community members are now aware of each protected site, and have put in place control measures when clearing their farmlands to prevent fires from spreading.

Community stories

Tree-planting to protect soils



Wilson Banda, aged 51, lives in Jembe with his wife and four children. Historically, Wilson has been a small-scale farmer of maize and vegetables but has benefitted from Temwa's training on organic manures in order to expand his harvests.

"Temwa has had a huge impact on the community, with the trainings in manure making, a lot of people are able to harvest high yield."

Now, through Temwa's forestry work, he is involved in beekeeping as a way of conserving the forests in Jembe.

Wilson has found the rapidly increasing cost of living, including farming materials, to be a real challenge. As a member of his local forest management committee, he has also been witness to high rates of deforestation in the area, and the struggle to buy seeds and undertake beekeeping at scale.

With Temwa's support, Wilson has been increasing his honey harvest by building more beehives. He hopes this will increase his family's income and help support his children.

Catching up with Flywell

In January, we caught up with Flywell Chiumia, a long-standing member of Temwa's Carbon Balance project. Flywell is now 62, and struggles to farm in the way he did when he was younger and more able. Being part of Carbon Balance is helping ensure his harvests continue to sustain his family.

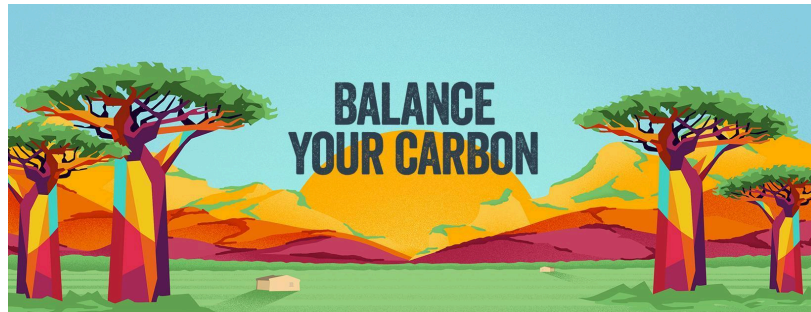
He used to solely depend on small piece work for his income, until 2010 when Temwa changed his approach to farming and forestry. His farming land used to be very bare, meaning he faced soil infertility and water-run off. This had a drastic effect on his production, as he was only producing 10-15 bags of maize on one acre of land.



Now he is part of the Carbon Balance project, he has planted approximately 5,000 trees on 5-acres of land, including pine and agroforestry trees. Since planting these trees, improved water control has improved his land quality. He is now able to harvest about 30-35 bags of maize on one acre of land.

Now he has been trained on the grafting and budding of fruit tree seedlings, Flywell has been able to raise 180 grafted fruit trees in his orchard, including lemon and orange trees. Selling the fruit brought in MWK200,000 in 2023. This year, he is planting avocado trees to diversify his produce.

He is also protecting 2 acres of natural forests in which he has hung 4 beehives in 2023. He has harvested 30 kgs of honey, bringing in an income of MWK60,000. The protected forest is also providing firewood and mushrooms for Flywell's family.



www.temwa.org

Charity No: 1185889