

Copperbelt: Forests on Farms

Engaging smallholder farmers
in reversing deforestation

Yearly Update 2021



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Summary

Zambia's Copperbelt is a deforestation hotspot. Land degradation and soil erosion have become widespread and result primarily from the increasing population and the pressure it places on land through poor agricultural practices and other social-economic activities such as charcoal production.

In return for agreeing to restore and protect native miombo woodland and harvest sustainably, farmers in our Copperbelt: Forests on Farms project are provided with the training and tools they need to diversify into forest-friendly activities such as sustainable bioenergy, fruit and honey production.

Having met our goal to restore 3000 ha in Luanshya, one of the 10 districts that make up Zambia's Copperbelt Province, our project has expanded into Mpongwe and Ndola and Luanshya is now in a 5 year monitoring phase.

As a result, 2021 was largely devoted to setting up the project's activities in the new districts. Offices were set up in Mpongwe, and a socio-economic baseline survey of households was carried out in both Mpongwe and Ndola. This will be used to measure the impact of our project on the communities here.

The first steps were made to prepare for the development of a stakeholder engagement plan, including engaging five chiefs, and WeForest signed agreements with the Mpongwe District Farmers Association, Chinchi Women Farmer Association, and BirdWatch Zambia.

In June, a successful audit means the project is now verified to the Forest Ecosystem Restoration standard in recognition of its quality work and contribution to the UN Decade on Ecosystem Restoration.

This report shares an update of our progress during 2021. Thank you for all your support!

2021 in numbers

124.89 ha of new Assisted Natural Regeneration (ANR) plots established on farms in Mpongwe with **62** farmers, representing over **149 000 trees** being protected and regenerated.

ANR plots range from 0.57 ha to 8 ha. The average is **3.2 ha** per farm, representing over **3800 trees** per farmer.

650 new beehives were distributed to **70** farmers in Mpongwe.

1760 beehives were harvested.

28 Permanent Monitoring Plots in Luanshya district assessed for biomass growth (data in review).

Since the project began:

3265 ha is under restoration, representing **3.9 million trees**.

Potential to eventually restore up to **7000 ha** – that's **8.3 million trees**.

18 native tree species regenerating.

Over **2800** households directly benefiting from the project.

Over **4500** beehives in operation.



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Restoration

Over 3.9 million trees on 3265 ha being regenerated on smallholder farms

In 2021, 125 ha of land on 62 farms (16 women and 46 men) was allocated to regenerate approximately 150 000 trees through Assisted Natural Regeneration (ANR). The cumulative total for the project is now 3265 ha, with an average of 3.2ha of forest regeneration per farm.

By devoting some of their land to regenerating these trees, farmers expect to benefit through a healthier forest that will provide mushrooms, wild fruits and honey. Farmer training covers practical aspects of looking after forests such as how to select the right area for their regenerating forest, selective cutting to make the trees grow faster, fire management and ring weeding.

Farmers that are part of the programme receive beehives to generate income from honey, as well as basic beekeeping skills, including the beekeeping calendar for good hive management throughout the year. In exchange the farmers commit to protecting the trees, attending training sessions, and allowing monitoring visits of the regenerating trees in the ANR plots on their land.

Refresher training for 65 farmers who joined the programme in 2020 – 38 men and 27 women – took

First come, first served

Don't let this innocent little face fool you! The beehives hung on beautiful miombo trees provide warm, safe and pretty tree houses – and sometimes, mice are faster than bees. A hive has been used by this mouse and his family to make a cosy nest, much to the annoyance of farmer Lazarus T. ...and the bees!





Cutting wood makes it grow faster

Selective cutting is one of the sustainable forest practices that farmers are encouraged to use in the miombo woodlots on their farms. Selective cutting promotes sustainable yields of wood without compromising a site's potential to regenerate, nurturing the long-term health of the forest by removing less healthy growth and allowing more light to penetrate. This image shows an abundance of healthy new shoots growing from a coppiced *Parinari curatelifollia* (mupundu or mobola plum).

place between September and November, covering coppicing methods and pollarding, a pruning method that involves removing upper branches to promote a dense head of foliage.

Creating a new Community Forest Area in the Imanda Forest has started

A new initiative to strengthen community forest ownership and biodiversity conservation is focused on the Imanda Forest, one of the largest examples of moist evergreen forest not only in this area but in the country as a whole. This Important Bird Area is not legally protected, and its borders are being encroached by selective logging for construction poles, wild honey collecting, late-season fires, cattle grazing; and invasive vegetation (*Lantana camara*).

Our goal is to bring 400 ha under Community Forest management, and this year key partnerships for future success were established with BirdWatch Zambia, the Forestry Department and the community through the traditional leadership (Village Chiefs).

Mapping of the community forests and the formation of Community Forest Management Groups (CFMGs) will start in 2022.





Governance

Communities are responsible for law enforcement and the protection of regeneration sites on farms

The law enforcement system in Luanshya, run by the Luanshya Forest Commodities Association (LFCA), has proven to be very effective and is expected to be rolled out in the other districts. Six Community Forest Rangers carry out patrols under the supervision of the Forestry Department to provide regular advice to farmers, monitor the forest regeneration status of the farms of participating farmers, and check whether they are applying good restoration practices. In 2021, a total distance of 3496 km was covered by the rangers in 176 patrols.

Ranger retraining took place at the Forestry Department in Luanshya in August and covered all aspects of forest regeneration practice to ensure rangers can provide good advice to farmers. Fire management was a key topic on the agenda this is something that few farmers practise, yet is crucial for success. Rangers were trained in the construction and maintenance of firebreaks, ring weeding, weed suppression and controlled burning.

Coppice management, an activity rarely practised by farmers but also vital in the management of the miombo forests, was also tackled alongside pruning and pollarding techniques that can speed up tree growth.

Women in the Copperbelt

The empowerment of local women are an important consideration as the livelihoods schemes are being defined (see Livelihoods, next section). The Copperbelt project, like other WeForest projects, will adopt some or all of the following strategies to empower women, who in a subsistence economy are typically the ones collecting water and gathering firewood and are therefore the primary users of forest resources.

- Encourage women into positions that are traditionally perceived as a man's job, such as bee mentor.
- Select and design activities that are traditionally done by women, such as poultry or mushroom production.
- Encourage female representation and leadership in governance structures.
- Improving access to technologies. Some women are afraid to apply for a Forest Ranger position simply because they do not know how to use a smartphone. Organising sessions to specifically address this could go a long way to strengthen women's confidence and participation.

Why is restoration needed in the Copperbelt?

In the Copperbelt province, more than anywhere else in Zambia, the typical miombo forest has suffered from mining and charcoal production. According to [Global Forest Watch](#), from 2001 to 2020, Copperbelt lost 335 000 ha of tree cover, equivalent to a 17% decrease in tree cover since 2000. Mpongwe had the most tree cover loss at 107 000 ha.

The root causes for the loss of forest cover in the project area are:

- Inadequate agricultural support – leading to unsustainable and forest-destructive practices – to cope with incoming migration and population growth in turn leads to pressure to expand farming land.
- Weak customary governance structures results in absent or unenforced rules and weak or absent integrated land use processes.
- The energy demand leads to illegal charcoal production.
- A lack of incentives and perceived benefits to sustainably manage forests results in the absence of investment in woodlots and larger forests.



Monitoring highlights the challenges of restoration on farmland

Monitoring in the Luanshya district identified that proper fire management techniques are the most challenging for farmers and some also need more support to improve their sustainable harvesting techniques. During 2022, the Forestry Department will carry out joint patrols with rangers to support awareness-raising and improve implementation. Where charcoal making is discovered – which is not permitted – rangers can highlight and monitor the situation. Where the situation is not resolved, the regeneration plots are not included in our programme.

While there are challenges in farmer-managed regeneration, it is the only route to reducing deforestation and regenerating forests in regions like the Copperbelt where the landscape is dominated by small-scale farmers. In June, a successful third party audit took place and means the project is now verified to the Forest Ecosystem Restoration standard. This standard was developed by Preferred by Nature to enable projects to demonstrate alignment with and support for the UN Decade on Ecosystem Restoration and covers technical, environmental, social and economic criteria. You can download the certificate [here](#).





Livelihoods

Forest-friendly livelihood schemes increase incomes for participating households

Beekeeping is a forest-friendly business here. Beehives have amazing potential to prevent deforestation, as honey sales can provide a significant income for farmers and their families, sometimes even doubling it. This means they don't need to make a living from illegal logging and charcoal burning – and bees need healthy, flowering trees to flourish. So that's a great incentive for the communities to leave the trees standing.

By 2021, more than 4500 beehives are now in operation across the sites and during this year alone 650 new hives were set up with 70 farmers in Mpongwe. 9kg to 15kg of honey per hive is the expected average from the hives in the Copperbelt project, which could generate an estimated US\$22 to US\$37 per hive for a family, or up to 5% of their annual income.

In 2021, 1760 hives belonging to 756 farmers were harvested over the two seasons (June/July and November/December). In 2021 the average yield of honey from the harvested hives was 14kg per hive. This 17% increase in honey harvested compared to 2020 is good news and driven in part by the new hives in Mpongwe, where both harvests took place successfully in most areas, as well as higher hive occupancy overall: 3 out of every 5 beehives were occupied.

However, when counting both occupied and non-occupied

No stick? No problem!

Farmers from the Luanshya area – like Samson S. here – have no shortage of bamboo bushes, which makes it much easier for the bee mentors, who don't need to bring a stick with them while visiting the farms. Instead, they can just harvest one! Sticks are used with a rope to help the bee mentor lower beehives down from the trees.





hives, and the fact that most farmers in Luanshya opted not to harvest in December because of the projected low yield, the average yield from all hives installed was 6kg. This meant that the 672 farmers (443 men and 229 women) who sold honey through the market provided by WeForest and

partners netted an average of \$28.10 each for their honey, which is below the target at the moment.

Several pilot projects are underway to assess their potential to contribute to household income.

The irrigated vegetable garden pilot project in collaboration with the LFCA will see farmers growing cabbages, tomatoes and green beans using treadle pumps for irrigation, which will be sold to local institutions such as hospitals. This pilot scheme was rolled out late last year and the LFCA is currently distributing treadle pumps that were delivered by WeForest in the first week of November 2021 with 50 more set to be delivered in 2022.

The kuroiler chickens pilot in Luanshya – in which 200 chickens were provided to two groups of twenty people – experienced lower than expected production. Increasing prices of chicken feed and an unbalanced ratio of cockerels to hens were primary drivers, and further skills and support is needed for the farmers. WeForest has provided recommendations to the LFCA including further training on feed production using local resources, creating an easy reference manual on chicken production and fostering partnerships with institutions offering capacity-building on chicken production.





Self-sufficiency

Farmers' Associations can sustainably support and run income generation schemes

Strong and well-functioning local Farmers' Associations can create significant value and income for farmers that result in resilient farming households. Resilient households can cope more easily with 'shocks' and are less dependent on overexploiting trees (charcoal and timber) to earn money. Many Farmers' Associations lack the skills and resources to support farmers in land use planning processes that are the basis for sustainable agriculture and sustainable forest management.

In partnership with three Farmers' Associations – Mpongwe District Farmers' Association (DFA), Chinchu Wababili Women Farmers' Association, and Luanshya Forest Commodities Association (LFCA) – WeForest is providing support that will enable the Associations to take over their own income generation programmes. In 2021, only a small number of capacity-building workshops – which focus on areas such as financial management (resource mobilisation), communication and leadership among other topics – took place due to COVID-19 restrictions. More are planned for 2022.

The Luanshya Forest Commodities Association (LFCA) is anticipated to be the first to take independent ownership of their programme, having already taken on the beekeeping and the irrigation scheme, for which they began to distribute

treadle pumps last year. Farmers who are members of the Associations agree to share a percentage of profits from honey sales with the Association that can in turn provide the

A house, thanks to honey

As far as honey sales were concerned, George C., a bee mentor and Community Forest Ranger in Luanshya, was one of the lucky ones! He has seen a major increase in his income from K5000 in 2019 to K7000 in 2020, and after harvesting 3 tonnes of honey with the farmers he is mentoring in the June-July season, he raised approximately K13000 (US\$659). With this extra income he's been able to buy blocks and roofing sheets to build a bigger house for his family, which he hopes to complete in the next two years.





funds for more specific training, collective equipment, etc. Despite the high value of honey from beekeeping (associations received US\$6299 in income), alone it is unlikely to meet the income the Associations need to cover farmer resources and training in addition to administrative and basic expenses.

New value chains such as improved chicken production, aquaculture, goat rearing, nursery/orchard, and dairy farming have been identified through a participatory process yet not all will be appropriate since some (dairy and aquaculture) may actually increase pressure on forests. We're continuing to work with communities to develop the best fit.



A close working relationship: Farmers' Associations

In this picture, WeForest Copperbelt Project Manager Haggai Mutale and Gasper M. from Mpongwe District Farmers' Association (DFA) are gathering feedback from the farmers in Mpongwe's Kasenga Block during the 2021 June/July post-harvest meeting. Later, the farmers received their payments for the harvested honey.

We strongly encourage female representation in the Farmers' Associations we work with, and this is reflected in their boards: 4 women and 7 men in the LFCA, 3 women and 3 men in the DFA, and the all-women at Chinchu Wababili Association in Ndola.



What's Next?

- 100 farmers belonging to the Mpongwe District Farmers' Association (DFA) are expected to join the restoration programme with an anticipated average of 5 ha per farmer.
- 25 farmers from Ndola's Chinchi Wababili Women Farmers' Association are expected to join the programme with an anticipated average between 3-5 ha.
- 1250 beehives will be installed in approximately 625 ha of ANR plots for these 125 newly trained farmers.
- The Imanda Community Forest project will be established.
- Capacity-building workshops for the farmer associations will be conducted, with a focus on planning, governance, communication, financial management, sustainable forest management and livelihood skills.
- Farmers' Associations will be supported to coordinate the harvesting and marketing of 25 000 kg of honey across all three districts in the two harvests of 2022, with the aim of raising 393 750 ZMK, or US\$36 per farmer.
- Agroforestry programme to be scaled up with seed nurseries managed by the Farmers' Associations.
- Feedback meeting sessions with the traditional leadership in the respective operational areas will be held.
- Jointly with the DFA, we will take part in a community radio awareness programme on farm-based sustainable forest management and ANR practices.
- A baseline survey for the irrigated vegetable garden pilot project will be carried out, and 50 treadle pumps will be distributed to the selected farmers.



How do we know our restored forests are growing and making an impact?

Every hectare under restoration is mapped with GPS points to generate polygons (areas on a map) that are assigned to sponsors. Permanent monitoring plots are established in our sites and our forestry and science teams conduct surveys to monitor progress of biomass growth, tree density, survival rate and species diversity, among other indicators. Where social impacts are also critical, we measure socio-economic indicators such as the number of beneficiaries, people trained, and income generated from forest-friendly livelihood activities.

Please visit our [Why and How](#) webpage for more information.



Stay up-to-date with your interactive [Copperbelt map](#), and check out the [photo album](#) of the project on Flickr.

Thank you for supporting the Copperbelt: Forests on Farms project!