African Blackwood Conservation and Ethnobotanical Organization

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Annual Report 2024 - 25

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1 Project overview

1.1 Background

African blackwood Conservation Project (ABCP) formerly known as African Blackwood Conservation and Ethnobotanical Organization (ABCEO) is an organization that was established in 1996, the ABCEO has been committed to replanting the tree species *Dalbergia melanoxylon* – more commonly known as grenadilla, African blackwood or mpingo (Swahili) – in its native habitat of eastern Africa. The wood of this tree, which is the national tree of Tanzania, has been treasured since antiquity for its elegant appearance and remarkable properties. Many exquisite furniture pieces made of mpingo have been recovered from the tombs and temples of the ancient Egyptians from as far back as 5,000 years ago, and it has been considered a precious species in numerous cultures around the world ever since. In modern times its primary uses are in the manufacture of woodwind instruments, the creative wood carvings of east African artists and the artform of Ornamental Turning. Many of its users consider it irreplaceable [1].

The heartwood of the mpingo tree is known for its oiliness, density, and tight grain, but its slow growth taking 70-100 years to reach harvestable size makes it vulnerable to overharvesting. Although historically widespread, the mpingo is now commercially available only in south-eastern Tanzania and northern Mozambique. Listed as 'near threatened' on the IUCN Red List, its conservation status may be more critical than previously assessed.

The ABCEO has been actively replanting mpingo trees in northern Tanzania, where the species is now commercially extinct. The program has raised awareness of the tree's importance through educational initiatives and collaborated with various organizations to distribute several hundred thousand mpingo seedlings from its Mijongweni nursery. The nursery also provides indigenous tree seedlings for domestic use and environmental remediation in the Mt. Kilimanjaro watershed.

[1] https://www.blackwoodconservation.org/

1.2 Introduction

In 2024/25, the African Blackwood Conservation and Ethnobotanical Organization (ABCEO) continued its mission to mitigate climate change by promoting the planting of economically viable tree species while conserving the environment. This year we have made a significant advancement, with a highly increase in both the number of trees planted and the geographical area covered. These efforts aimed at restoring local ecosystems and improving livelihoods by emphasizing the value of indigenous trees.

1.3 Progress Overview

Compared to last year's distribution of 18,980 trees, this year we achieved an increase, planting a total of **24,674 trees** across the Kilimanjaro and Arusha regions. The additional trees were distributed to schools, churches, and community lands, with new species such as African Mahoganny *(Khaya nyasica)* and Senegalia polyacantha *(vachellia polyacantha)* introduced for their ecological and economic benefits.

The tree species distributed and their ecological importance have expanded to include more indigenous varieties aimed at enhancing biodiversity and ensuring long-term sustainability.

1.4 Objectives for 2024/25

1.4.1 Increase Tree Planting and Distribution

In these years work we have been able to make an increase in tree planting areas, aiming for a total of 30,000 trees to be distributed across the districts, particularly focusing on species like African Blackwood, and other indigenous species like, Albizia Schimperiana, and newly introduced species such as African Mahoganny *(Khaya nyasica)* and Senegalia polyacantha *(Vachellia polyacantha)*.

1.4.2 Increase Species Diversity

The project has been able to introduce new species like African Mahoganny *(Khaya nyasica)* and Senegalia polyacantha *(Vachellia polyacantha)* to expand the ecological benefits and enhance local livelihoods by focusing on environmental and economic viable tree species that contribute to biodiversity.

1.4.3 Raise Public Awareness on Climate Change and Conservation

We have managed to strengthen advocacy for tree planting as a climate mitigation strategy, increasing public awareness of the environmental and economic benefits of conservation, targeting schools, religious institutions, and community lands for greater involvement.

2 Activity and achievement

2.1 Tree Planting and Species Distribution

This year, the ABCP distributed and facilitated the planting of trees in five key districts: Rombo, Kikatiti, Moshi, Mwanga, and Siha. We extended our reach to new institutions in the Rombo and Siha districts, nurturing even more significant environmental consciousness within the communities.

2.1.1 Species distributed and their Significance

- **Neem Tree (Azadirachta indica):** Continues to thrive and is now being planted at higher altitudes.
- **Albizia Schimperiana**: Increased for its nitrogen-fixing benefits, supporting agricultural sustainability, it has been so important to most farmers and school farms.
- **Moringa Oleifera:** Enhanced distribution as a high-nutrient source for food security and medicinal value in rural areas.

2.1.2 New Species Added:

- **African Mahoganny *(Khaya nyasica)***: is a significant tree species renowned for its ecological and socio-economic roles. Ecologically, it contributes to biodiversity by providing habitat for various wildlife species, including birds and insects, and plays a crucial part in soil stabilization and carbon sequestration. With its deep root system, Khaya nyasica helps prevent soil erosion and maintains local water cycles by facilitating groundwater recharge. Its broad canopy also aids in regulating microclimates within forested areas, thus supporting the diverse ecosystem that thrives beneath its shade. On the socio-economic front, Khaya nyasica is highly valued for its durable and aesthetically appealing timber, making it a primary source for high-quality furniture, cabinetry, and veneers.
- **Senegalia polyacantha *(Vachellia polyacantha):*** is an important leguminous tree species that plays a vital ecological role in its native habitats. Notably, it improves soil fertility through nitrogen fixation, enhancing the productivity of surrounding vegetation. The tree’s extensive root system helps prevent soil erosion, particularly in arid and semi-arid regions, making it essential for

combating desertification. supports biodiversity by providing habitat for various organisms, including birds and herbivores. Its leaves and pods serve as a crucial food source for wildlife, especially during the dry season when forage is limited, thereby contributing to the overall ecological balance of its environment. In socio-economic terms is highly valued for its diverse uses in local communities. It serves as a key source of fuelwood and charcoal, particularly in rural areas where access to alternative energy sources is limited. Its foliage is also an important fodder resource for livestock, playing a significant role in supporting pastoralist livelihoods.

2.2 Tree Distribution Table for 2024-25

This is a detailed tree distribution table that marks improvements in the number of seedlings distributed, particularly African Blackwood, as we aim to cover larger areas with diverse species.

District	2023 - 24	2024 - 25
Rombo	5,475	7,118
Kikatiti	4,616	6,150
Moshi	1,380	1,725
Mwanga	6,372	7,986
Siha	1,137	1,695
Total	**18,980**	**24,674**

Trees Distributed Chart (2024/25)

2.3 Area Coverage Expansion

In this year 2024-25 we have managed to make an increase in total area covered, which has to make an addition of lands across the five districts. In the Mwanga and Rombo districts, new community lands have been added for afforestation by various institutes, ensuring that efforts to restore forest ecosystems can continue well.

2.4 Water Infrastructure and Nursery Expansion

To support this growth, ABCP formerly ABCEO expanded its water infrastructure within the nursery. This increased water security allowed for the propagation of over 30,000 seedlings, ensuring a continuous supply of young trees for the coming years.

2.5 Community Engagement and Education

Throughout the year, ABCP strengthened its educational efforts by conducting environmental workshops at the nursery for students and teachers at partnering schools. These workshops emphasized the importance of tree conservation, tree care techniques, and the role of forests in combatting climate change.

A reward scheme has been introduced to encourage students' participation in tree planting and maintenance activities, such as giving certificate of participation and gifts to encourage students and teachers to keep up in putting more efforts. This initiative has led to increased engagement, with over 2,000 students actively participating in tree planting campaigns overall.

3 Impact assessment

3.1 Monitoring and Evaluation

The African Blackwood Conservation and Ethnobotanical Organization (ABCEO) plays a crucial role in ensuring the sustainable growth, nurturing, and survival of trees, especially in light of challenges posed by human activities and climate change. The Monitoring and Evaluation (M&E) process is designed to track tree growth patterns, improve nurturing practices, and boost survival rates through strategic interventions.

3.2 Monitoring Growth Patterns

Regular monitoring of tree growth is essential to understanding how different species adapt to the current environmental conditions. The ABCEO has employed a combination of field visits, aerial surveys, and data collection from local volunteers and schools to measure tree growth at different stages seedling, sapling, and mature tree stages.

3.2.1 Key indicators monitored include:

- **Height growth:** The average annual height increase of each tree species is recorded, allowing the project to adjust nurturing techniques for underperforming trees.
- **Diameter at Breast Height (DBH):** DBH is used to track the volume of biomass accumulated by the trees, which provides insight into their health and their capacity to sequester carbon.
- **Crown spread:** A measure of the tree canopy, which is essential for understanding the shade provided and the ecological benefits of the trees in terms of temperature regulation and soil protection.

3.2.2 Nurturing Practices

Nurturing is a critical aspect of ABCEO's monitoring and evaluation process. Based on the monitoring data, the project adopts targeted nurturing strategies to improve tree health and increase survival rates, particularly for newly planted and more vulnerable tree species

3.2.2.1 Nurturing techniques include:

- **Watering schedules:** Adjustments are made based on local rainfall patterns. Regions with lower precipitation benefit from drip irrigation systems introduced this year, ensuring that trees receive sufficient moisture, particularly during the dry season.
- **Mulching and soil improvement:** Mulching is applied to retain soil moisture, reduce erosion, and enhance root development. Organic materials such as leaves, wood chips, and compost are also added to improve soil fertility.
- **Pruning and pest control:** Trees are regularly pruned to promote healthy growth and prevent diseases. Organic pest control methods are used to mitigate threats from insects and fungi without harming the ecosystem.
- **Guarding against livestock:** Local communities have been engaged to protect tree plantations from grazing livestock. Simple but effective tree guards and fencing systems have been introduced in high-risk areas.

3.2.3 Survival Rate and Sustainability

The ABCEO has successfully increased the survival rate of planted trees to a higher rate compared to previous years. This success is due to enhanced nurturing practices, timely interventions, and community collaboration.

3.2.3.1 Key factors contributing to improved survival include:

- **Community Engagement:** By involving local schools and communities in the tree maintenance process, ABCEO has fostered a sense of ownership, resulting in better care for the trees and a higher survival rate. Incentive programs for schools and local farmers have motivated continued tree care.
- **Environmental Resilience**: Species like African Blackwood, Vachellia, Yellow passion fruit, Albizia, Terminalia and Agrocarpus have proven to be highly adaptable to local climatic conditions, making them more resilient to environmental stressors such as drought and fluctuating rainfall patterns.

3.3 Addressing Challenges: Human Activity and Climate Change

Despite progress, the ABCEO continues to face challenges from human activities and climate change. These challenges have been mitigated through proactive Monitoring and evaluation (M&E) processes.

- **Livestock grazing:** This remains a significant threat in some areas. To counter this, ABCEO has requested and made agreement with local leaders to enforce protection measures, including fencing and establishing grazing-free zones.
- **Deforestation for agriculture:** The project has partnered with farmers to introduce agroforestry practices that integrate tree planting with crops, providing an incentive to preserve rather than clear trees.
- **Climate change:** As unpredictable weather patterns increase, ABCEO has focused on selecting more drought-resistant tree species. For example, the introduction of African Blackwood, Vachellia, Yellow passion fruit, Albizia, Terminalia and Agrocarpus species has provided an alternative to more water-dependent trees, ensuring resilience against prolonged dry spells.

To enhance the trees' resilience to climate extremes, ABCEO has also adjust the planting schedules based on rainfall patterns, ensuring that new saplings are planted when they have the best chance of surviving.

4 Challenges

Despite the progress made by ABCEO in tree planting, nurturing, and conservation, several challenges have affected the efficiency and long-term success of its activities. These challenges range from environmental issues to social and logistical difficulties. However, each challenge has provided the project with valuable lessons that have helped shape more effective strategies for the future.

4.2 Livestock Grazing

One of the most persistent challenges ABCP faces is the destruction of young trees by grazing livestock, especially in regions where livestock farming is a major livelihood. Community lands where trees are planted are often accessible to cattle, goats, and sheep, which graze on saplings, reducing survival rates and impeding growth.

4.3 Human Activity

Deforestation for agricultural expansion and firewood collection has been another challenge, particularly in regions where land is scarce and communities depend on the forest for their livelihoods. Often, the need for short-term agricultural gain outweighs long-term environmental considerations, leading to tree clearance even in areas where ABCEO has planted trees.

4.4 Climate Change and Unpredictable Weather Patterns

Climate change has significantly impacted tree planting efforts. Prolonged droughts, unexpected rainfall patterns, and increased temperatures have affected tree survival, particularly for water-dependent species. Young trees are especially vulnerable during dry spells, leading to higher mortality rates.

5 Future plans

5.1 Future Plans for the African Blackwood Conservation Project

5.1.1 Expanding Tree Nursery

One of our key goals is to expand our tree nursery to grow even more seedlings, which will help meet the increasing demand for trees across Tanzania, this will improve the ones we have, we can raise more trees and distribute them to more communities in need. We aim to not only grow trees but also teach people how to take care of them. By extending the nursery, we can ensure that local communities have a sustainable supply of high-quality to plant. It's also about empowering people we want schools, farmers, and volunteers to be involved, learning the skills they need to care for the environment.

These nurseries will serve as more than just growing grounds for trees. They will be centres of learning, where people can come together to discover the importance of trees and how nurturing them contributes to a better future. It's a chance for us to build a movement of people who are passionate about restoring the land and protecting the environment. Together, we can ensure that future generations enjoy the benefits of a healthy, thriving ecosystem.

5.1.2 Owning Private Land for a Tree Plantation Pilot

Another important step for the project is acquiring a piece of land where we can create a pilot tree plantation. This will be a space where we can test different species, planting techniques, and strategies in a controlled environment. Having our own land gives us the freedom to try new things without worrying about outside factors. It's a space to learn, innovate, and refine our methods so that we can scale them across larger areas in the future.

This pilot plantation will also be a place where we can demonstrate how tree planting can fit into the everyday lives of farmers. By combining tree planting with agriculture, we'll show that you don't have to choose between growing food and restoring the environment — they can complement each other. This space will be a real-world example of how reforestation can help communities become more resilient, both economically and environmentally.

5.1.3 Engaging Schools Through Events

Schools are at the heart of our mission because the future of the environment lies in the hands of the younger generation. We plan to increase our efforts in organizing school events that go

beyond just planting trees. These events will include competitions, workshops, and hands-on tree planting activities. Students and teachers will not only learn about trees and the environment but also actively participate in restoring their local landscapes.

We believe that when young people are directly involved in these activities, they develop a strong sense of responsibility and pride. By nurturing this passion for the environment, we hope to inspire lifelong environmental stewards. The knowledge they gain from these events will ripple out into their families and communities, spreading awareness and action far beyond the walls of their schools.

5.1.4 Raising and Planting 100,000 Tree Seedlings Annually

Our most ambitious goal is to raise and plant 100,000 tree seedlings each year, this will present a bold step toward healing the land and restoring biodiversity. We want to make a tangible impact on degraded lands, and planting this many trees will help reverse the damage done by deforestation and erosion. But through this it will enable us to cover over a large area and supply the seedling for plantation as we have noticed an increase demand on the tree seedlings.

As an organization, this project will help us set clear goals and show our commitment to achieving them. It will also strengthen our relationships with local leaders and government officials, allowing us to work together more closely to protect our environment. By earning their trust and support, we can expand our impact and bring even greater benefits to our communities.

6 Conclusion

In conclusion, the African Blackwood Conservation Project is taking crucial steps to shape a greener future for our communities. By expanding tree nurseries, securing land for a pilot plantation, involving schools, and raising 100,000 seedlings each year, we are not only replanting trees but also rebuilding the connection between people and their environment. Our efforts focus on both healing the land and empowering local communities to be the guardians of their natural resources. As we move forward, it is clear that together we can restore degraded lands, boost livelihoods, and ensure that the benefits of a healthy ecosystem are passed on to future generations.

7 Appendices

Name of Institution	District	Elevation & Coordinates	Mpingo	Markhamia Lutea	Passion Fruit	Grevillea	Acacia	Terminalia	Neem Tree	Avocado	Felician	Albizia	Guavas	Mahogany	Total Quantity
Ikuini Pr. School	Rombo	37m 02772530, UMT 9615796, EL. 1107	1,250	320	150	100	70	5	10	50	110	0	0	100	2,265
Ubaa Primary School	Rombo	37m 0350843, UMT 9648666, EL. 1131	310	120	20	19	10	16	0	25	40	0	0	10	570
Ubaa Secondary School	Rombo	37m 0350043, UMT 9652775, EL. 1181	1,800	80	100	80	60	10	20	0	100	0	10	25	2,285
Kafufuu Primary School	Rombo	37m 0347200, UMT 9661443, EL. 1388	310	20	20	0	10	0	0	20	50	0	15	10	455
SMAM Farm	Mwanga	37m 0344649, UMT 9607559, EL. 735	1,015	20	150	0	218	0	150	10	238	40	0	130	1,971
Kwanynge Pr. School	Mwanga	37m 0345291, UMT 9606785, EL. 1007	550	0	100	40	120	0	0	0	102	10	60	0	982
Kivisini Pr. School	Mwanga	37m 0338539, UMT 9605699, EL. 769	980	10	30	150	0	60	20	120	80	20	21	21	1,491
Kivisini Secondary School	Mwanga	37m 0338539, UMT 9605699, EL. 769	980	10	30	150	0	60	20	120	80	20	21	21	1,491
Kituri Primary School	Mwanga	37m 0338241 UTM 9612537 EL. 711	300	10	5	100	40	0	0	20	80	20	10	0	605
Kilimani Primary School	Mwanga	37m 0338241 UTM 9612537 EL. 711	78	0	10	0	0	0	0	0	50	0	0	0	138
Kifaru Primary School	Mwanga	37m 0333389, UMT 960899, EL. 700	550	80	150	0	0	0	0	0	200	0	0	0	1,030
Grail Sisters Tanzania	Mwanga	37m 0349332, UTM 958107, EL. 1006	20	0	0	0	0	0	10	0	50	0	0	30	110
Handeni Primary School	Mwanga	37m 0333389, UMT 960899, EL. 700	550	80	150	0	0	0	0	0	200	0	0	0	1,030
Kivisini Sec. School	Mwanga	37m 0333389, UMT 960899, EL. 700	550	80	150	0	0	0	0	0	200	0	0	0	1,030
Kifaru Sec. School	Mwanga	37m 0344572, UMT 958920, EL. 879	320	10	25	45	40	0	0	0	190	0	0	20	650
Nazareth Pr. School	Kikatiti	37m 0268614, UMT 9617145, EL. 1007	1,053	140	20	52	68	10	40	50	62	50	0	49	1,594
Valesca Church	Kikatiti	37m 0268614, UMT 9617145, EL. 1007	1,115	200	180	32	18	12	10	23	120	10	7	12	1,739
Moshi – Kibo Farm	Moshi	37m 0272530, UMT 9615791, EL. 964	1,002	40	10	74	53	16	18	50	80	17	10	10	1,380
Valesca Pr. School	Kikatiti	37m 0268812, UMT 9611280, EL. 952	800	80	31	81	100	50	5	21	50	15	10	40	1,283
Total			10,182	800	1,876	888	959	152	412	379	761	139	117	254	**24,674**