

Promoting biodiversity and livelihoods through forest restoration by communities

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Abstract

Forests provide numerous products and services to sustain human life – from timber, wild fruits and wood energy to releasing oxygen into the atmosphere, water conservation and mitigating adverse climate change effects by absorbing and sequestering carbon dioxide. Despite these benefits, there are many threats to the existence of forests, including illegal logging, agricultural expansion, poor forest management policy implementation and urban population growth with increased use of woodfuel and charcoal. Because of these threats, deforestation and land degradation are the most likely consequences. In order to mitigate their effects, African countries need to engage in large-scale restoration programmes that can focus on the promotion of desired species. This could mean developing functional partnerships between beneficiary communities, government agencies, NGOs, community-based organisations (CBOs) and the private sector. This paper explores the roles played by the different development actors and practices that enhance forest restoration in Africa, with a focus on the role of women. Different actors are critical to achieve restoration efforts. Proper implementation of forest restoration interventions can create jobs and improve incomes, leading to effective nature-based

solutions to climate change. Restoration interventions must not be gender blind and therefore continuous sensitisation, and skill-building, of the people involved is important to enhance protection measures and efficient utilisation of forest resources.

Introduction

Environmental degradation is occurring at alarming rates globally and has motivated restoration efforts that aim to enhance biodiversity and ecosystem functioning, and ensure continued provision of products and services. The conservation of the majority of the world's biodiversity is highly dependent on the way in which we interact with, and use, the world's forests. Restricting utilisation can perpetuate degradation by escalating illegal activities (Galabuzi *et al*, 2014). Forests are a most essential natural resource, providing numerous products and services to sustain human life – from timber, wild fruits and wood energy, to releasing oxygen into the atmosphere, water conservation and mitigating adverse climate change effects. Forests also act as a 'safety net' for people who rely on them for food, shelter and work (FAO & UNEP, 2020). The forestry sector delivers ecological services that enhance the productivity and

survival of other sectors such as agriculture, livestock production, industry, water, energy, health, wildlife and tourism (MWE, 2013). The direct and spill-over effects of the cataclysmic destruction of forest landscapes requires urgent sustainable restoration efforts that promote good health and improved livelihoods.

The twenty-first century problems threatening the sustainable existence of forests continue to occur: illegal activities such as logging, poor implementation of policies to protect natural ecosystems, as well as recurring crises such as urban population explosion, which can entail an increased use of woodfuel and charcoal, and that requires land for settlement and farming. More recently, forests are at greater risk of being cut down and degraded, due to the social and economic disruptions resulting from the coronavirus disease 2019 (COVID-19) pandemic (FAO & UNEP, 2020). According to FAO & UNEP (2020), the world lost an estimated 10 million hectares (24.7 million acres) of forests *per year* between 2015 and 2020. This was down from an annual 16 million hectares in the 1990s. Although the report shows that deforestation has slowed, progress has been uneven, with population growth driving a rise in Africa. Since 1990, an estimated 420 million hectares of forest have been lost, more than three times the size of South Africa.

To help reverse the trend of deforestation and forest degradation, African countries need solutions that balance conservation and sustainable use of forest biodiversity. One of these solutions, as proposed by the *State of the World's Forests 2020* report by the Food and Agriculture Organization of the United Nations (FAO) and United Nations Environment Programme (UNEP), is large-scale forest restoration in order to meet the Sustainable Development Goals (SDGs). The restoration of degraded forests to enhance biodiversity, ecosystem services, as well as climate change mitigation and adaptation, is a major priority in cities around the world. Forest restoration can take on many forms, including restoration of desired species to an existing ecosystem, or restoration of severely degraded land devoid of vegetation. The role played by the different actors, including local communities, in reversing loss of biodiversity and fostering forest restoration in Africa cannot be overstated. Local communities should rightly be included in small- and large-scale reforestation efforts. Involving local people in determining appropriate techniques and practices for forest restoration, and identifying conditions for implementation is likely to yield positive results (Alday *et al*, 2013, cited by Galabuzi *et al*, 2014). Local communities can be great allies in forest restoration, benefitting from capacity-strengthening for collaborative forest management, heightened awareness on restoration and continuous monitoring by forest managers (Galabuzi *et al*, 2014).

The different actors in forest restoration in Africa

Governments

Governments play a vital role in forest restoration, with interventions channelled through ministries, parastatals and local governments. Emphasis is placed on mobilising financial resources and ensuring that key activities necessary for the achievement of sustainable forest management are supported. Governments provide an enabling environment in terms of policies, political stability and a will for implementation of programmes. In Uganda, government agencies supporting forest restoration include Uganda Wildlife Authority (UWA), National Forestry Authority (NFA), Ministry of Water and Environment (MWE) and National Environmental Management Authority (NEMA). Together with district governments, these agencies manage central and local forest reserves, national parks and wildlife reserves, which together form part of Uganda's forest cover of about 3.6 million hectares (MWE, 2013). Working in collaboration, each with its mandate and jurisdiction, these agencies contribute to social-economic development and effective use of natural resources, while promoting the Government's goal of ensuring sustainable development and attainment of national aspirations, and international commitments.

NEMA, for instance, is responsible for coordinating, monitoring, regulating and supervising environmental management, while spearheading development of environmental policies, laws, regulations, standards and guidelines for sound environment management. NFA, on the other hand, ensures sustainable management of Central Forest Reserves and supplies high-quality forestry-related products and services to government, local communities and the private sector. Between 2006 and 2010, MWE implemented the Farm Income Enhancement and Forest Conservation Project (FIEFOC) aimed at reducing poverty, diversifying agricultural production and restoring degraded landscapes of resource-poor farmers. These agencies, and their respective programmes, demand effective leadership, resources and commitment to realise success, and should therefore be prioritised.

In Mozambique, the Government has encouraged foreign direct investment through its 2006 National Reforestation Strategy. The strategy outlines plans for the establishment of at least 2 million hectares of tree plantations in the next 20 years. An additional 3 million hectares will be zoned for development of industrial plantations by potential investors. In total, the plan identifies an area of 7 million hectares as suitable for plantations. In Uganda, the NFA has leased several hundred hectares of public forest reserves to

private companies, community-based organisations (CBOs) and individuals to promote forest restoration through commercial forestry.

NGOs, CBOs and development agencies

NGOs support development programmes in many sectors, such as health, education, livelihoods and environment. Some international NGOs supporting forest restoration and management in East and Southern Africa include the World-Wide Fund for Nature (WWF), FAO, International Union for Conservation of Nature (IUCN), the UN High Commissioner for Refugees (UNHCR) and the World Agroforestry Centre (ICRAF). These non-state actors mobilise funding from donors and other development partners to support different environmental activities, many of which are implemented by local- or national-based NGOs, such as Environmental Alert and Environmental Conservation Trust of Uganda (ECOTRUST). In Uganda, FAO is currently implementing the Sawlog Production Grant Scheme (SPGS), a public-private initiative supporting investment in commercial tree planting to help mitigate climate change and create job opportunities along the forest value chain. Funded by the European Union, the SPGS provides partial grants to private sector players to establish planted forests on their own land, in central forest reserves or degraded lands. SPGS also works with rural communities and institutions, providing them with inputs and technical assistance to establish their own community forests or woodlots.

NGOs such as Association of Uganda Professional Women in Agriculture and Environment (AUPWAE) work with rural communities and help to emphasise the importance of participation of vulnerable populations in environmental restoration through their advocacy and public sensitisation work. AUPWAE uses the dynamic and participatory Adaptive Collaborative Management (ACM) process to support restoration, helping communities to become part of the restoration process and gain a sense of ownership of the forests. The ACM approach has enabled women to transcend old gender norms that obstructed them from planting trees and gaining ownership of those they planted. Uganda's Forest Policy 2001 calls for enhancing the role of NGOs and CBOs to strengthen civil society, build capacity and grass-roots participation, and help develop the rights and responsibilities of forest users.

Private sector

The private sector has been crucial in the implementation of government programmes, financing some of the programmes and creating employment opportunities. In line with restoration efforts through tree planting for different purposes,

protection of areas of special interest and provision of training grounds, among others, the private sector has made these possible, and increased the forest cover in the different zones. The forestry sector is an important employer in Uganda, especially in rural areas. The Government of Uganda estimates that the forest sector employs about one million people and the establishment of 21,000 ha of forest between 2004 and 2007 led to the creation of 10,000 permanent jobs (MWE, 2013). In Uganda, small, medium-sized and large companies, which may be domestic or domiciled overseas, are major players in forest and landscape restoration and commercial afforestation. These include Global Woods AG, Green Resources AS (GRAS), New Forest Company, and Gulu Timbers. For example, GRAS is a plantation carbon off-set, forest products and renewable energy company, that has invested about USD 55 million in Africa, mainly in Mozambique, Sudan, Tanzania and Uganda. GRAS employs around 600 people full time and numbers can reach over 1,500 people depending on season, in addition to engaging numerous contractors and suppliers. Global Woods employs between 300 and 600 people, including those under its contractors. These companies also provide opportunities for students of forestry in different institutions to secure field attachment and practice in these companies to gain hands-on skills and knowledge.

Communities

In most African countries, forests are found on private or communal land. Sixty-four percent of the forests in Uganda are on private and communal lands managed by private and local community forest owners (MWE, 2013). As a result, most forestry activities are undertaken in the informal and/or smallholder sectors, where forests and trees play a major role in providing livelihoods for rural communities and the urban poor. Individuals and communities normally provide land for restoration activities through leases or sale. They also provide the labour required for carrying out the different activities – from establishment to value addition. Local communities are willing to conduct conservation activities, as well as looking for cash income. Forest-dependent people can engage at any point in the value chain, for example by turning timber and non-timber forest resources into higher value products for sale at higher prices (Galabuzi *et al*, 2014). Small to medium-sized forest enterprises have been associated with informality; however, several have become formalised and organised into associations to leverage growth, partnerships or business opportunities as concession holders, including joint venture partners with larger local or foreign investors (Gondo, 2014). In most East and Southern African countries, including Kenya, Tanzania

and Uganda, communities living adjacent to forest reserves are required to form forest user groups and community forest associations, in order to secure forest management agreements with the forest administration (Lundgren *et al*, 2011 and Johansson *et al*, 2012, cited by Gondo, 2014). In addition, smallholder farmers and land owners are getting increasingly involved in industrial plantation forestry activities, commonly through private–community partnerships. In Kenya, there has been a marked growth in farm forestry following the ban on timber logging from government plantations. Although exact figures are not available, a significant proportion of timber and poles are now being harvested from farm forests (Gondo, 2014). Harvesting for fuelwood – the primary source of energy in Uganda – is also a major cause of forest degradation.

Global communities

The spectrum of forest restoration actors in Africa is incomplete without the role of foreign governments, donors and other development partners being considered. These primarily provide funding, technical expertise and platforms for shared knowledge, to support national governments to implement programmes that can generate sustainable impact. A key player is the Global Partnership on Forest and Landscape Restoration (GPFLR) – a proactive global network that unites governments, organisations, academic and research institutes, communities and individuals under the common goal, “to restore the world’s lost and degraded forests and their surrounding landscapes”. The GPFLR responds directly to the *Bonn Challenge* to restore 150 million hectares of deforested and degraded land by 2020, and 350 million hectares by 2030.

Women as champions in forest restoration in Africa

Women play essential, and critical, roles in forest and landscape restoration in Africa. Many women have highly specialised knowledge of trees and forests in terms of biodiversity, sustainable management, utilisation for various purposes, and conservation practices (FAO, 2007). Women also have vast knowledge of the food and medicinal values of forest products, which are particularly important during food and health crises. Furthermore, women are involved in the harvest and use of forestry products to support their families, often making specific contributions to forestry, and agroforestry, value chains, as well as food and income security. On account of the many ways in which they help to harness the benefits from forests, women rank highly as essential partners in forest restoration. Below are some justifications for women’s involvement in forest and landscape restoration.

Tree planting and management, both on-farm and in forest reserves

Naturally considered nurturers, women, whether as individuals, in communities or within companies, are highly involved in tree planting on their own farms, in forest reserves, and along forest boundaries. The motivations for women to be interested in tree planting range from environmental conservation, income generation through sale of different products obtained from trees, and a consideration of the socio-environmental values of trees. Different species are grown depending on the end purpose, eg timber and non-timber products (timber, fuelwood, poles and resins, among others), and the nature of the specific tree planting site. Findings of a study conducted in and around Mabira Forest Reserve in Uganda showed tree planting and enrichment planting in the forest were among the practices that address the needs of the local people, especially women (Galabuzi *et al*, 2014). Indigenous trees and shrubs, as well as exotics, are planted on farms mixed with crops such as beans, groundnuts and coffee. Women pay much more attention to the deliberate inclusion, or retention, of selected species on crop fields. The criteria for selecting tree species is based on local knowledge and the perceived usefulness of the tree species. The more uses a particular tree species has, the greater the chances of it being selected and maintained in crop fields. The inclusion of selected species, such as those for medicinal purposes, helps to enhance biodiversity conservation.

Community sensitisation, mobilisation and capacity-building

Community-to-community exchange visits, especially to sites where forest restoration has taken place, are desired by local people to facilitate learning. The visits encourage individuals to demonstrate new ideas to others by undertaking restoration activities, such as woodlot establishment and other forestry-related activities (Galabuzi *et al*, 2014). The involvement of women as champions in forest restoration campaigns, through sensitisation and training, has encouraged many women to participate in tree planting activities. Women who carry out tree planting activities also share their positive experiences in forestry activities, to motivate other community members to adopt tree planting and forest conservation. In the Talensi district of Ghana, on the border with Burkina Faso, the international organisation World Vision reported enhanced leadership roles particularly for women, improved attitudes towards environmental management, greater optimism for the future of their farms and communities, and greater community solidarity for forest restoration when involved in tree planting

(Weston *et al*, 2015). World Vision implemented its Farmer Managed Natural Regeneration (FMNR) Programme from 2009, for three years, through which community-managed forests were protected by community by-laws. Community members protected the forests and benefitted from harvesting wood, grasses and other resources. Women were among the 'lead farmers' (90 men and 90 women) who were trained in FMNR practices and were pivotal in mobilising other community members to learn and experiment (Weston *et al*, 2015). Communities received training on techniques to prevent soil erosion, bulk composting, field mulching, suppression of bushfires and field burning, fuel-efficient wood stoves, formation of income-generating groups, and formation of savings groups (Weston *et al*, 2015). By the end of the project, 161 ha of community-managed forest and 336 ha of cropland had been restored.

Diversification of forestry-related income-generating activities

Non-timber forest products (NTFPs) and non-wood forest products (NWFPs) have economic and social values that can be even higher than timber products in some areas. NWFPs include fuelwood, a broad range of edibles (fruits, honey, fungi, oils), medicines, gums, resins, tannins, handicrafts (rattan, vines, bamboo and grasses) – which can further be processed into consumer-oriented products (Chakravarty *et al*, 2015). The indigenous knowledge of the communities, the commercial viability of the extracted products, the abundance of the NTFPs and the proximity to forested areas, determine the diversity of products extracted from the forests (Narendran *et al*, 2001, cited by Chakravarty *et al*, 2015). According to Neumann & Hirsch (2000, cited in Chakravarty *et al*, 2015), women do daily collection of NTFPs such as food, fuel, craft materials, and common raw, and processed, NTFPs. The engagement in forestry value chains is essential for rural women's livelihoods and the wellbeing of their families, helping to expand and diversify the rural economy (Buffle *et al*, 2000). Processing of honey into the traditional honey beer, and its sale, is an exclusively female-based enterprise in Zambia. In Ethiopia, the sorting and cleaning of gums and resins is the primary source of income for 96 percent of the women involved, while in Burkina Faso, women engaged in sorting gum arabic report that this is the most important source of income for 3–4 months of the year. In Uganda, women use both traditional and improved methods to make products like oil (used for cooking, lip care and body moisturising) and soap out of shea butter, derived from shea nuts (*Vitellaria paradoxa*). Women and girls are engaged

in collecting and processing the shea nuts, as well as sale of fresh shea fruits and charcoal made from shea trees (Okwi, 2019). Thus, due to the economic benefits, and other cultural and religious beliefs, attached to certain trees, especially by women, they are compelled to support their conservation and restoration.

Since women are generally involved in the gathering, processing and marketing of NTFPs, and make significant labour contributions to forestry value chains, it is therefore justified that women have a better appreciation of the value of native tree species, and can more readily protect them from over-exploitation. In Burkina Faso and Niger, women are responsible for selling leaves and fruits in the local markets, while men usually deal with fuel and poles. Research has shown that some women can earn up to USD 210 a year by selling the leaves from regenerated baobabs, flowers of the kapok (*Ceiba pentandra*), and fruit of shea nut (*Vitellaria paradoxa*) and locust bean (*Parkia biglobosa*). However, many of the activities they are engaged in have low returns. This could be attributed to the low level of interest from key stakeholders, such as policy makers, in the potential of NTFPs for local and international markets. This relative neglect is compounded by the paucity of data and analytical work on gender differences in forestry value chains (FAO, 2007).

Women are also more engaged than men in collecting firewood for household use. This reliance on forests for wood energy motivates them to pay additional attention to sustainable use of forests. Furthermore, the risk of over-exploitation has contributed to the faster adoption by women of improved technologies, such as improved energy cook stoves. In Uganda, FAO distributed energy-efficient cook stoves in Bidibidi refugee settlement in Arua District. The refugee women embraced the use of improved cook stoves that consume less fuelwood compared with traditional cook stoves; the improved stoves also cook faster. Increased use of the improved energy cook stoves has resulted in reduction of harvesting wood for firewood, and thus reduced degradation. However, the rate of adopting improved charcoal stoves remains relatively low, at only 9 percent (MWE, 2016).

Women also have a concern to protect forests and natural landscapes from dangers such as wild fires. During fire seasons, women remain vigilant and alert to detect fires nearby and in the forests. They are more committed to protection measures than men, especially considering the numerous benefits that can be lost when fire sweeps through a rehabilitated environment, such as grass for thatching, fruits and income, which they generate from forests and forest-related activities.

Case study: Watemu Lapainat Agro Forestry Association (WLAA) women’s group prospers through tree planting in Uganda

The Food and Agriculture Organization of the United Nations (FAO), working on behalf of the Ministry of Water and Environment (MWE) in Uganda, is implementing the Sawlog Production Grant Scheme (SPGS) project and has engaged private sector actors, rural communities and institutions since 2004 to plant about 70,000 ha of forests (about 8,000 ha planted for wood energy by institutions and communities). Women and women’s groups have been instrumental in adopting tree planting and inspiring communities to engage in forest restoration and tree planting on personal or communal land and farms, as well as in forest reserves.

WLAA in Gulu District, northern Uganda, is one of the women’s groups supported by SPGS. The group, most of whose members are widows, started over two decades ago in a desperate effort to improve food security in their households and to restore the degraded environment. At the time, tree planting was not a popular venture in their community, and was shunned by many, including men, as a loss-making venture. But true to the meaning of their name, Watemu (Acholi language meaning ‘let’s try’), the women never relented. The local authorities allocated them 10 ha of land in the forest reserve, where they planted trees. Starting out, the group received training in raising seedlings from a local NGO and soon started raising eucalyptus seedlings, all of which they sold. The following year, the group leased 1 ha of land for a period of 5 years, again to plant eucalyptus. With no

knowledge on the duration for maturity of the trees, the group expected returns in 5 years, after which they would start another venture. But, impressed by the growth, each year from 1997 to 1999, they planted an additional hectare. However, the insurgency in northern Uganda made managing operations very challenging and eventually the nursery operations halted. In 2000, WLAA leased 10 ha of land from the National Forestry Authority and resumed tree planting. Unfortunately, with limited technical expertise in tree planting, the planted eucalyptus trees were destroyed by termites. WLAA never gave up and instead sought technical support from the SPGS. The group received technical training in identifying suitable tree species for different areas, land preparation, plantation establishment, weed control, protection (pests and diseases), pruning and thinning, and inputs, such as tools and tree seedlings.

The women of WLAA have increased planting of bio-energy trees on their farms and inadvertently reduced wood harvesting for fuelwood – the primary source of energy in Uganda and a major cause of forest degradation. The group is also involved in collaborative forest management, an approach implemented together with the Government, to increase local communities’ involvement in forest management. This has resulted in increased tree planting and greater community awareness about the importance of using forests sustainably. The women have also been successful in selling logs cut from their forests and have earned some money to help them sustain their families. With support from local NGOs in Uganda, empowering women groups like WLAA is a priority in restoration of forests and degraded landscapes.



Some of the members of WLAA group in one of their plantations (Photo: FAO/Stella Apili)



Women in Mubende District, central Uganda, harvest beans from a tree plantation (Photo: FAO/Anita Tibasaaga)

Conclusion

When implemented appropriately, forest restoration helps restore habitats such as forests and other ecosystems, create jobs and income, and is an effective

nature-based solution to climate change (FAO & UNEP, 2020). However, global progress to restore degraded forest land is slow, despite the fact that countries have pledged to restore 350 million hectares (an area almost

the size of India) of degraded forest by 2030 under the Bonn Challenge. Partnerships, and the engagement of various key stakeholders – in particular NGOs, farmer organisations and communities – in large- and small-scale restoration efforts can significantly boost countries' aspirations for forest restoration and environmental conservation. Furthermore, involving women in forest restoration programmes can prove to have lasting beneficial outcomes for communities, environmental protection and sustainable development. The United Nations Decade on Ecosystem Restoration, 2021–2030, announced in March 2019, aims to accelerate ecosystem restoration action worldwide. However, restoration efforts should pay attention to opportunities for women's involvement, and ensure that they are empowered to make incremental positive environmental contributions.

Women all over Africa represent great allies in forest restoration and ecosystems management. Therefore, forest restoration efforts must consider respecting the rights and knowledge of local communities and indigenous peoples. As explained above, local communities, especially women, have relevant knowledge on beneficial tree species and forest products that can propel them out of poverty, and improve the health and wellbeing of their families. In addition, promotion of products from NTFPs has been proven to be important in Africa, Asia and Latin America to improve communities' livelihoods and promote gender equity. Supporting women's NTFP microenterprise groups leads to increased incomes and women's empowerment, and thus a reduction in deforestation.

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News from the field 5

The impacts of tillage - by the Zambian Conservation Farming Unit

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How farmers prepare their land – the tillage practice employed – has a profound impact on yields, on farm productivity, and on that farming household's capacity to insulate itself against one-off and longer-term climate-related events and economic shocks. Before a single seed is sown and a single bag of grain meanders its way to a market, it is the land preparation operation that affects nearly every single operation from farm to market. Get it right, and even difficult growing seasons can be mitigated and managed. Get it wrong,

and a farming household careens from one food- and income-related crisis to the next.

Across Africa, tillage practices are characterised by the continuous and overall disturbance of soils, whether by hoe, animal draught or mechanised tillage, to establish crops. Overall, tillage is costly and destructive – leading to a gradual decline in the inherent ability of soils to produce healthy crops. In turn, this leads to stagnant or declining yields and