



Community Managed Tree Nursery Centers for Water, Energy and Food Security

Case of ARCOS Network and its Community Partners' Interventions in Bugesera, Kirehe and Rutsiro Districts, Rwanda



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About this publication

This is one of the series of brochures aimed at experience sharing on ARCOS NBCEs Programme. Other case studies produced include:

- *Community Managed Tree Nursery Centers for Water, Energy and Food Security*
- *Building Community Ownership and Institutional Development*
- *Nature Based Village as a model for transformation toward sustainable community development*
- *Nature Based Community Enterprises as mean to create jobs for youth*
- *Using water hyacinth to improve livelihoods and restore freshwater ecosystems*
- *The benefits of market-oriented agriculture to women*
- *Sustainable Energy Access in Rwanda's Rural Areas*

About ARCOS Network

Established in 1995, the Albertine Rift Conservation Society (ARCOS Network) is a non-governmental organisation working with NGOs, Governments, Community-Based Organisations and the Private Sector, established in 1995 with the Mission "To enhance biodiversity conservation and sustainable management of natural resources through the promotion of collaborative conservation action for nature and people". ARCOS has programmes extending in the Albertine Rift region, Africa Great Lakes and African Mountains.

For more details visit: <http://www.arcosnetwork.org/en> or follow us on social media (provided on the last page)



ARCOS Strategic Areas 2016-2020 at a glance



1. Introduction



A big portion of Agricultural lands in Rwanda needs more agroforestry to stabilize the soil

Agriculture employs many people in developing countries. For instance, in Rwanda agriculture employs over 70% of the population. However, land degradation threatens their livelihoods and they are struggling to make ends meet as soil erosion and the impacts of climate change jeopardize their crops and livelihood. The subsistence nature of agricultural production also drives farmers to cultivate continuously, which depletes soil nutrients and reduces future harvest. Cultivating steep slopes with inadequate ground cover to prevent erosion exacerbates the problem. According to FAO (2005), as much as 40% of cultivated land in Rwanda is at risk of severe erosion and requires anti-erosion investments before cultivation begins. Moreover, many tons of soil are lost each year, flowing directly into rivers and streams that are not

adequately protected (REMA, 2009).

The rural communities also struggle to handle the energy crisis as they greatly depend on tree products for different livelihood. The small holder farmers do not have the capacity and capability to grow trees on their own which makes reforestation difficult as they have to wait for the external stakeholders to provide seedlings. The challenge on the latter scheme is that the local communities are not consulted and involved in the process and the tree species provided do not necessarily respond to their needs.

Rwanda's efforts to reduce poverty are affected by high dependency on agriculture, especially when combined with climate change, declining plot sizes, and limited investment in intensification

and erosion prevention (John Rwirahira, 2009). The alarming increase in forest loss would exacerbate the issue if nothing is done. For instance, according to **Global Forest Watch**, between 2001 and 2016, Rwanda lost 25 kha of tree cover. This loss is equal to 5 % of the area's tree cover extent in 2000, and equivalent to 2.29Mt of CO₂ emissions.

Empowering local communities to manage tree nursery and plant trees is a sustainable solution to land degradation, livelihood issues and thus contributing to climate change adaptation and mitigation. It can also contribute to Rwanda's target to increase forest cover

to 30% by 2020 (MINILAF 2018) and providing 100% access to clean water by reducing erosion and increasing the water filtration services of forests.

The present case study presents the experience of the Albertine Rift Conservation Society (ARCOS Network) on the community managed tree nursery. It documents the challenges, the lessons learnt and provides recommendations for stakeholders who are investing in such initiatives in present or in the future.



Communities need regular technical advice to effectively run a tree nursery center

2. What ARCOS is doing to solve the issue

a. ARCOS Network Approach and Goals:

ARCOS' community development programme adopts a holistic understanding of the socio-ecological system and helps the community to build vision of success based on sustainability principles and rooted in the cultural heritage. ARCOS works with Nature Based Community Enterprises (NBCEs) through a model structured around four but interrelated components that make the situation more approachable.

The BEST Approach (ARCOS 2015) focuses on four key areas:

B: Building leadership and sustainable institutions. Cooperative management, governance, setting targets and work plans, gender and youth inclusiveness.

E: Enhancing environmental resilience. Promoting Community Based Adaptation through sustainable agriculture, enhancement and protection of soil and water ecosystems and biodiversity, forest landscape restoration, ecosystem-based adaptation, promotion of green energy technologies.

S: Sustainable business solutions. Assisting NBCEs in business planning, value addition, private sector engagement, market linkages and quality certification.

T: Transforming and inspiring others. ARCOS and empowered NBCEs focus on Nature Based Villages (NBVs), demonstration sites in integrating sustainable environment and livelihoods practices. This is supported through a Nature Based Community Fund (NBCF) established to foster sustainability actions in each NBV through community loans, incentives and activities of common benefits. ARCOS also promotes community to community exchange through training workshops, exhibitions and exchange visits where communities share knowledge and experience and learn by doing.

b. Implementation and Process

ARCOS Network strives to support activities that enhance environmental resilience and Community Based Adaptation through promoting sustainable agriculture technologies, enhancing and protecting the soil, water ecosystems and biodiversity, forest landscape restoration, promoting green energy technologies (energy saving cooking stoves, biogas and solar energy), etc. Throughout this journey, the capacity of local community partners in tree nursery development and management, and the awareness and understanding on environmental sustainability has significantly increased.

Nature Based Villages (NBVs) were established to serve as a model for sustainable practices that contribute to improving livelihoods and environmental resilience. So far 10 NBVs were established: 2 in Bugesera, 2 in Kirehe and 6 in Rutsiro. In each NBV, a Community Tree Nursery Centre was set up to provide the community with tree species needed to restore their farmlands and for food security. The ARCOS Network built a partnership with Nature Based Community Enterprises (trained community cooperative) to spearhead this initiative. Consequently, the NBCEs members gained capacity in tree nursery management and knowledge in forest and landscape restoration. Moreover, a Nature Based Community Fund (NBCF) was established

in each NBV to sustain this initiative through supporting community projects that are economically viable and include activities that enhance community resilience to climate change.

3. Achievements and Impact

So far, ten Community Managed Tree Nursery Centers were established, produced and planted over 270,000 trees in Bugesera, Kirehe and Rutsiro Districts of Rwanda. Over 300 ha of watershed are protected and restored through tree planting, soil conservation and agroforestry interventions.

The results and impacts from this initiative have been tremendous: For instance, KABONYA (farmers' cooperative from Nyagihunika Sector of Bugesera District) increased its maize production from 957 kg to 24 tons per season per 2ha; Twigiremuhinzi Rusebeya (Farmers in Rusebeya Sector of Rutsiro District, Rwanda) increased its potatoes production from 5 to 38 tons per season on 3.5 ha, KOIMIZANYA (maize) from 8 to 24 tons, KOAUKI (banana) from 158 to 250 tons.

The NBCF so far (by April 2018) has supported 100 community projects. Most supported projects were about farming including banana, cassava, potatoes, maize, livestock farming and horticulture. The communities appreciate the NBCF and NBVs achievements in terms of social cohesion, providing financial solutions for community projects, raising environmental awareness and land restoration.



More than 270,000 trees were planted and over 300ha of watershed protected in Kirehe, Bugesera and Rutsiro throughout this initiative



Fruit trees and Grevillea are very much appreciated by local communities.



The initiative also included farmer-managed natural regeneration where indigenous species were conserved on farmlands



So far, 10 Community Managed Tree Nursery Centers established and operational in Kirehe (3), Bugesera (4), and Rutsiro(3)

3. LESSONS LEARNED

We have learned a lot since the establishment of the Community Nursery Centers. In brief, empowering communities to produce and plant the trees, is the sustainable option for achieving the target of increased forest cover, restoration of agricultural lands and adaptation to climate change while also reducing poverty among Rwandan citizens. Below are some lessons learned:

- Capacity building is the key factor for the success of Community Tree Nursery Centers
- Communities need regular technical advice and physical and financial inputs, as well as adequate monitoring and evaluation to run a tree nursery centre effectively and ensure the maximum survival rate of the trees planted.
- Community Nursery Centers are more cost-effective and yield better results than the mega-seedlings production and distribution by big organizations. It is more effective in terms of seedling distribution, greater participation by local people in the production process and tree maintenance.
- For the success and the high survival rate of the trees, local communities need to be involved throughout the process. It is important to have the baseline and be guided by the needs of the community in choosing the species to produce in a nursery. The baseline also guides the activities pertaining to raising awareness and education.
- Local government involvement in all steps of the process is important for the success of a tree nursery and tree planting initiatives.
- Incentive systems are an integral part of the success of tree planting and land restoration, as it affects the survival rate of trees planted and raises the commitment of local communities in restoration.
- Even if the communities may feel the consequences of land degradation through the decrease in harvests or the occurring disasters, they will not shift to restoration until they are educated and accompanied in the process.

4. CHALLENGES AHEAD

Rwanda has joined the global program for restoration named Bonn Challenge and committed to restore two million hectares by 2020. The Restoration Opportunity Assessment conducted by the International Union for Conservation of Nature (IUCN) and the World Resources Institute (WRI) presents farmlands as a big opportunity for restoration in Rwanda (MINIRENA, 2014). To succeed, the adequate knowledge and empowerment of grass root local farmers in all steps pertaining to Forest Landscape Restoration (FLR) is required. The initiative, such as this supported by ARCOS Network, to empower communities to contribute to this national agenda exists, but there are financial constraints and many challenges in regard to the sustainability.

Even if tree planting contributes to the country's GDP and Districts development in particular, the budget to support the seedling production and tree planting is very limited in District's Development Plans. The Districts rely on NGOs and other institutions to occasionally provide the tree species to plant for communities. Sometimes the communities are not consulted and given a chance to choose species that they find beneficial to their livelihoods or educated on the importance and how to take care of a given tree species.

Also, the incentive systems for tree planting (and forest landscape restoration) are small or non-existent in many villages, Cells, Sectors and Districts of the country.



Bringing on board all stakeholders is required for successful restoration of the Rwandan landscapes

There are some opportunities to support the community tree nursery centers but the communities are most of the time unable to apply to those on their own. This means, the local government and the partners need to tackle that issue and mobilize resources to support the communities initiative of this kind.

5.CONCLUSION

ARCOS Network is committed to maintain and upscale the Community Tree Nursery Center initiative in as many villages as possible in Rwanda and other East African countries. We will also strive to mobilize resources through fundraising and partnership with different institutions to empower grass-root communities to restore their lands.

However, the support of every Rwandan is needed for restoration, in order to adapt to the climate change, the impacts of which are already widely felt. It is important that every citizen contribute to halting the extreme events we are

experiencing such as flooding, prolonged droughts, killer landslides, erosion.

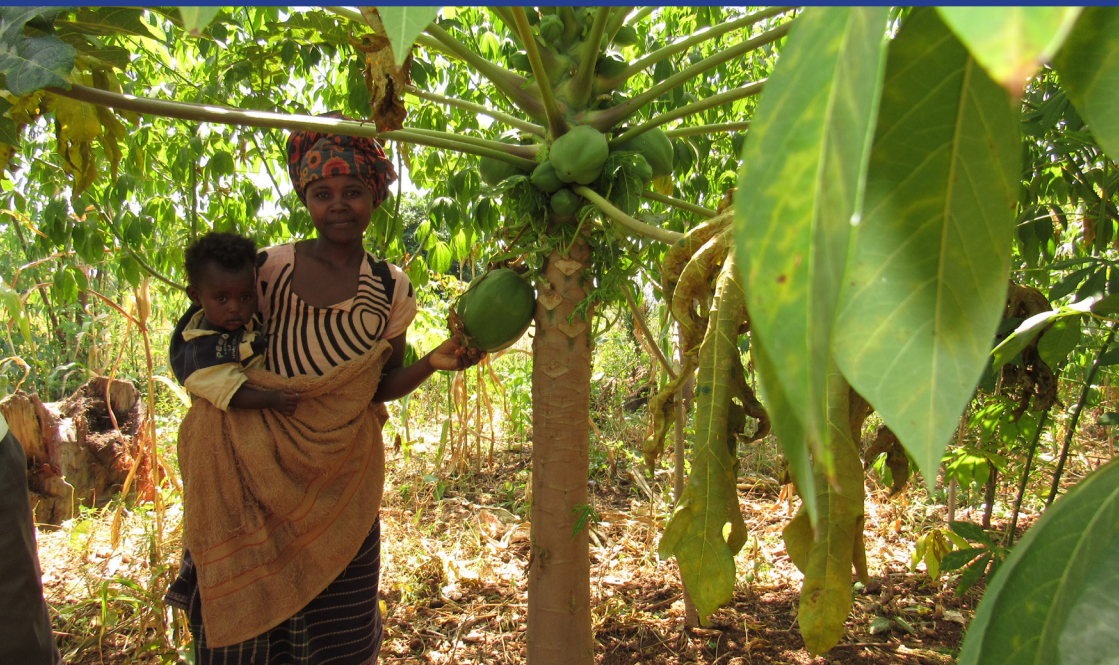
Rural communities have the ability to make restoration a success in Rwanda. However, any action with communities requires guidance and their involvement in every stage to help understand why building their capacity is important. It is also important to test a pilot study together and hand over the initiative when the community is ready to handle it independently. The Districts should provide budget to support the initiatives that contributes to enhancing climate resilience such as the Community Tree Nursery Centers.

We kindly ask everyone to participate in restoration of our country's landscape.



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Get involved If you are interested in supporting
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donation, advice or any information.

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