



PROMOTING AFFORESTATION AND REFORESTATION OF DEGRADED FORESTS FOR SOMALIA'S SUSTAINABLE FUTURE

TECHNOLOGY DESCRIPTION

TECHNICAL DESCRIPTION

Afforestation and reforestation technologies focus on planting trees to restore degraded forests (reforestation) or establishing new forests in areas without previous tree cover (afforestation). These technologies are crucial for mitigating the effects of deforestation and land degradation, particularly in Somalia's arid regions, where desertification is a significant challenge. The technologies primarily involve the use of native and drought-resistant tree species that are well-adapted to Somalia's arid and semi-arid conditions. Implementation requires careful planning, including site selection, soil preparation, and post-planting management to ensure long-term tree survival and ecosystem recovery. By introducing trees into degraded landscapes, afforestation and reforestation aim to improve biodiversity, restore ecosystems, and protect natural habitats.

Trees also play a vital role in enhancing soil quality, preventing erosion, and improving water retention in soils, which is crucial for agriculture and sustaining local communities. Additionally, these technologies contribute to carbon sequestration, capturing atmospheric CO₂ and storing it in forests, making them essential for climate change mitigation. In Somalia, where deforestation for charcoal production and overgrazing has severely reduced forest cover, large-scale afforestation and reforestation efforts are key to creating more resilient ecosystems and sustainable land management practices.

CURRENT TECHNOLOGY READINESS LEVEL OR COMMERCIAL READINESS INDEX

The Technology Readiness Level (TRL) for afforestation and reforestation in Somalia is currently around TRL 7, indicating that the technology has been demonstrated in relevant environments, and small-scale tree-planting initiatives have been implemented in several regions. Successful pilot projects have been conducted in various parts of Somalia, particularly in areas prone to desertification, showcasing the viability of large-scale tree planting and land restoration. However, the scale-up of these efforts faces challenges, including financial barriers, technical capacity gaps, and inconsistent long-term management of restored areas.

CLIMATE RATIONALE OF THE TECHNOLOGY

Somalia's forest cover has been severely depleted over recent decades due to deforestation driven by charcoal production, overgrazing, and widespread land degradation. These activities have led to a significant increase in carbon emissions, exacerbating the country's vulnerability to climate change impacts such as droughts, desertification, and loss of biodiversity. The reduction in forest cover has also diminished natural carbon sinks, weakening Somalia's capacity to sequester CO₂.

Afforestation and reforestation are crucial climate strategies aimed at reversing these trends. By planting trees in degraded or barren areas, these efforts help restore ecosystems, enhance biodiversity, and improve soil health. Importantly, they also increase the capacity of the land to sequester carbon, helping to mitigate Somalia's carbon footprint. These initiatives align with Somalia's Nationally Determined Contributions (NDC),



supporting both climate mitigation through carbon sequestration and adaptation by improving land resilience and reducing the risk of further environmental degradation.

AMBITION OF THE TECHNOLOGY

SCALE FOR IMPLEMENTATION AND TIME-LINE

By 2030, Somalia aims to increase forest cover by 5%, with afforestation and reforestation efforts covering approximately 100,000 hectares of degraded land annually.¹ This ambitious goal aims to restore ecosystems, improve livelihoods for rural communities through sustainable forestry, and sequester millions of tonnes of CO₂ over the coming decades. The program will prioritize areas most affected by deforestation and desertification, particularly in southern and central Somalia.

AMBITION FOR TECHNOLOGY READINESS LEVEL OR COMMERCIAL READINESS INDEX

By 2030, afforestation and reforestation activities are expected to reach TRL 8 or 9 – Demonstration in operational environments. This readiness will be supported by established sustainable management practices, including community-led reforestation efforts, local capacity building, and the integration of climate-resilient tree species. The goal is to ensure that these activities are not only scalable but also sustainable in the long term, involving local communities in the process. By reaching TRL 8, Somalia will be able to deploy these technologies more effectively, promoting ecosystem restoration while contributing to the country's broader climate adaptation and mitigation goals. This readiness will also facilitate access to climate finance and international support for continued expansion.

EXPECTED IMPACTS OF THE TECHNOLOGY

- **Environmental Impact:** Afforestation and reforestation efforts targeting 100,000 hectares annually will contribute to an estimated 500,000 hectares of restored forest by 2030. These efforts are critical, considering that 8.2 million trees were cut down for charcoal between 2011 and 2017, severely depleting Somalia's forests.² The widespread deforestation has led to severe land degradation, food insecurity, and increased vulnerability to flooding and drought. Reforestation will help reverse this trend, sequestering 2-4 MtCO₂ per year, enhancing biodiversity, reducing soil erosion by up to 50%, and improving water retention, which is crucial for stabilizing agricultural ecosystems.
- **Economic Impact:** Sustainable forestry practices will create new income streams for rural communities, generating 10,000 new jobs by 2030 including in timber production, agroforestry, and non-timber forest products (e.g., honey, fruits, medicinal plants). Afforestation efforts will also create jobs in tree planting, forest management, and monitoring.
- **Social Impact:** Afforestation will help improve food security by integrating agroforestry systems that combine tree crops with agricultural land. Over 500,000 farming households will benefit from better soil stabilization and water retention, ensuring more sustainable farming practices. Additionally, community participation in reforestation projects will promote local ownership and long-term sustainability.

¹ Federal Government of Somalia(2021) Somalia updated NDC 2021

² <https://blogs.worldbank.org/en/african/somalia-needs-its-trees-restore-landscapes-and-livelihoods>



POLICY ACTIONS FOR TECHNOLOGY IMPLEMENTATION

EXISTING POLICIES IN RELATION TO THE TECHNOLOGY

- **National Development Plan (NDP) 2020-2024:** The NDP emphasizes afforestation and reforestation as key strategies for rehabilitating degraded lands and mitigating the effects of deforestation and desertification.
- **Somalia National Environment Policy (2020):** The policy advocates for sustainable forest management, including reforestation efforts to combat desertification, protect biodiversity, and enhance climate resilience.
- **Somalia Climate change Policy 2022:** The Policy is a critical framework designed to address the country's vulnerability to climate change impacts, including drought, desertification, and land degradation. The policy emphasis both climate mitigation and adaptation strategies including Afforestation and reforestation programmes.
- **Ministry of Environment and Climate Change Strategic plan 2023-2028:** The plan serves as a comprehensive roadmap that details the ministry's vision for addressing current and future environmental challenges. It reflects the ambitions, and priorities of the ministry and its stakeholders, focusing on long-term objectives for sustainable development, climate resilience, and environmental governance.
- **Updated Nationally Determined Contributions (NDC) (2021):** Afforestation and reforestation are prioritized technologies in Somalia's NDC, as part of the country's broader climate mitigation strategy to reduce carbon emissions and increase carbon sinks.
- **National Voluntary Land Degradation Neutrality Targets 2020:** The strategy recognises land degradation caused by drought as a major impediment to national economic development as it adversely affects livestock and agriculture, which contributes heavily to its Gross Domestic Product (GDP). Some of the targets set under the document include; achievement of LDN by 2030 as compared to baseline 2015 (no net loss), an additional 10% territory has improved by 2030 and an increase of National forest cover increased from 10.14% (2015) to 10.20% (2022) and maintained at 30% by 2030.

PROPOSED POLICIES TO ENHANCE TECHNOLOGY IMPLEMENTATION

1. Financial Incentives and Support:

- Develop a resource mobilization strategy, engage with development partners, and secure funding through proposals and public-private partnerships. The financing options include by international climate funds (e.g., the Green Climate Fund) and bilateral donors.
- Develop carbon markets regulations and strengthen capacities to allow afforestation and reforestation projects to access carbon markets which would provide an additional revenue stream for these projects, incentivizing land restoration efforts by making them economically viable.
- Foster public-private partnerships to attract private sector investment and expertise in large-scale afforestation and reforestation projects. The government should create a supportive framework for businesses to engage in sustainable land restoration initiatives.

2. Strengthen Policy and Institutional Frameworks:



- Develop a national forest management policy that integrates afforestation and reforestation into Somalia's national development plans. This policy should set clear targets for forest restoration and establish legal protections for newly planted forests.
 - Establish a Forestry Directorate within the Ministry of Livestock, Forestry, and Range to coordinate reforestation activities, monitor progress, and ensure compliance with national climate and environmental goals.
3. **Capacity Building:**
- Train local communities, particularly women and youth, in sustainable forest management and tree-planting techniques. Community involvement is essential for the long-term success of reforestation efforts.
 - Establish regional tree nurseries to supply high-quality seedlings for afforestation and reforestation projects. Nurseries should focus on climate-resilient species that can thrive in Somalia's arid conditions.
4. **Public Awareness and Education:**
- Launch a national awareness campaign to promote the benefits of afforestation and reforestation, particularly in combating desertification and improving livelihoods. The campaign should target communities most affected by land degradation and involve local leaders in advocacy efforts.

COSTS RELATED TO THE IMPLEMENTATION OF POLICIES

The total estimated budget for afforestation and reforestation is USD 25 million over the period 2026-2030, covering:

- Reforestation Financing, incentives and support (USD 10 million)
- Capacity building and training for local communities (USD 5 million)
- Public awareness campaigns (USD 5 million)
- Policy development and enforcement (USD 5 million)

USEFUL INFORMATION

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LINKS TO TNA REPORTS

<https://tech-action.unepccc.org/country/somalia/>