EXPLORING THE HOLISTIC IMPACT OF THE GREAT GREEN WALL PROJECT: A COMPREHENSIVE STUDY OF CLIMATE AND ECONOMIC DYNAMICS

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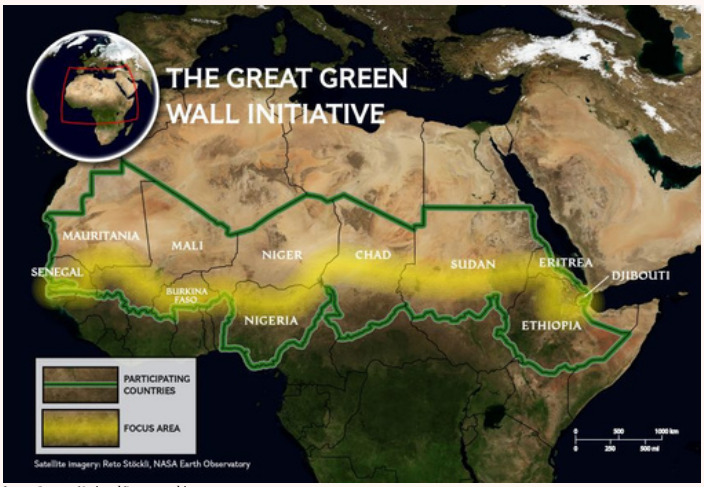

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The "Great Green Wall" constitutes a collaborative venture among 11 countries: Djibouti, Eritrea, Ethiopia, Sudan, Chad, Niger, Nigeria, Mali, Burkina Faso, Mauritania, and Senegal, with the objective of expanding arable land in the Sahel, the region adjacent to Africa's Sahara Desert(Schleeter, 2023). The initiative aims to replicate and scale up successful agroforestry methods previously employed by farmers in Niger, Mali, and Burkina Faso for natural regeneration.

Despite common misconceptions portraying the project as solely a tree-planting endeavor to create a barrier against the Sahara's southward expansion, Sinnassamy, one of the Program's managers, clarifies its broader scope. He emphasizes that the Sahara is a stable ecosystem without significant evidence of expansion (Schleeter, 2023). The project with a budget of 2 billion dollars, funded in part by the World Bank, goes beyond tree planting. It focuses on holistic agroforestry restoration in these areas, without the necessity of extensive tree planting. Noteworthy success stories have emerged, particularly in Senegal, where 50,000 acres of trees have been planted, contributing both environmentally and economically to the region.

INTRODUCTION

The "Great Green Wall" initiative unites 11 countries to enhance arable land in the Sahel. Contrary to misconceptions, it goes beyond tree planting, focusing on holistic agroforestry restoration with a $2 billion budget, partly funded by the World Bank. Senegal stands out for its success, planting 50,000 acres of trees, yielding environmental and economic benefits.

VALIDATION

Through tree planting, it addresses biodiversity enhancement, serves as a climate change mitigation strategy, and aims to sequester 250 million tons of carbon by 2030. This collaborative initiative has not only generated jobs, driven economic growth, and supported rural communities but also gained significant international support, symbolizing a collective commitment to addressing global environmental and climate challenges.

CRITIQUE

The term "restoration" may overstate the project's goals, highlighting a focus on economic benefits rather than holistic climate-driven rejuvenation.

While complete restoration, including removing human settlements, poses challenges, prioritizing climate benefits by restoring specific ecosystem parts is crucial. Balancing profitability incentives with the quality of restoration efforts is essential for meaningful contributions in the ongoing climate battle.

From an optimistic standpoint, the great green wall project stands as a practical and ambitious model for sustainability, exemplifying efforts to rejuvenate degraded land and ecosystems. Amidst skepticism regarding the commitment of developed nations to sustainable development, this initiative from a developing country underscores a genuine dedication to environmental ecosystem restoration, showcasing commitment despite resource constraints.

The tree planting initiative within the Great Green Wall not only enhances biodiversity by creating habitats for diverse plant and animal species, crucial for the overall resilience of ecosystems, but also serves as a climate change mitigation strategy. The project aims to sequester 250 million tons of carbon by 2030, thereby contributing to the reduction of greenhouse gas concentrations in the atmosphere (UNEP, 2023).

The project has also indirectly facilitated skills development and knowledge transfer, involving a substantial number of people across multiple countries. The holistic benefits of the Green Wall extend to an estimated 500,000individuals, encompassing improvements in health and welfare (Dlewis, 2021).

The Great Green Wall has globally spotlighted the challenges of desertification and land degradation, garnering significant international support. This collaborative effort showcases the collective commitment of nations to address pressing global environmental and climate issues, serving as an inspiring model for others to emulate (Raman, 2023).

Examined from an alternative perspective, the term "restoration" appears to overstate the project's goals when assessing its stated impacts and tangible accomplishments. Stepping back to scrutinize the issue reveals that the initially farmed land had degraded and become nonviable. Climate change and ecosystem degradation were significant contributors, but a deeper-rooted cause lies in the initial conversion of these lands into farmlands and improper farming practices post-defilement (Doso, 2014). True restoration would involve returning the land to its pre-deforestation state, making a conscious effort to restore the entire ecosystem—flora, fauna, animals, insects—while addressing foreign ecosystems like human housing. However, efforts have predominantly focused on economic benefits rather than holistic climate-driven restoration. Trees are chosen not for their indigenous attributes but for economic value, such as moringa trees and the Senegalia senegal species of acacia.

While complete restoration, including the removal of human settlements, might be challenging, prioritizing climate benefits by restoring specific parts of the ecosystem should be central to the cause. The objective to maintain native flora is a positive step, but it could be strengthened by using native flora as a reference point for ecosystem restoration, guiding choices for trees and crops. Undeniably, the lure of profitability has been a compelling incentive for local dwellers (farmers) in these regions to lead efforts in "regreening" the areas. It's crucial to acknowledge that achieving half of the desired outcome is better than none in the ongoing climate battle and thus the next phase should emphasize the quality of restoration to ensure that efforts and resources are not expended on a futile endeavor in the environmental sense.

RResearching further, all 11 countries combined had emitted approximately 2 million tons of carbon dioxide from 2007, which is when the project started, till 2020 (World Bank Open Data). Forecasting, they are expected to emit a total of 4 million tons of carbon dioxide by 2030. With a goal to sequester 250 million tons of carbon dioxide through the exercise, the net effect shows that the countries would be contributing more to the climate fight on a yearly basis than they would be contributing. As at August 2023, a report by Mongabay (Raman, 2023) showed that the project had achieved only 18% of its goals in terms of tree planting, inferring from that, approximately 45 million metric tons of carbon dioxide sequestered by their current progress. Thus although the project may be more profit driven and may not be restoring the targeted lands to their original biodiversity, the efforts are making great strides in netting the effects of the emissions by the countries partnered on the project.

The collaborative approach of the restoration work, drawing inspiration from successful projects like the Forest Landscape Restoration (FLR) initiative in Tanzania, reflects a model that intertwines conservation, social, and economic benefits. The FLR project, starting in 2004, significantly reduced forest clearance, engaged communities, and saw impressive outcomes like an 88% decline in forest clearance, a 97% reduction in forest fires in village land forest reserves, and improved

livelihoods through alternative income-generating activities such as beekeeping and aromatic plant farming (WWF, 2021). The success of FLR demonstrates the potential for the Great Green Wall project to follow a similar trajectory, as evident in its current promising progress. Despite falling behind its initial targets, the GGW has shown positive impacts, enriching lands for livestock fodder cultivation in Burkina Faso, Niger, and Senegal, thereby enhancing household income. The strategic shift from tree planting to shrubs like Leptospermum scoparium, Boscia senegalensis, Grewia flava, Euclea undulata, or Diospyros lycioides presents multiple benefits((O'Connor & Ford, 2014), including faster growth rates and the foundation for silvo-pastoral livelihoods, particularly in beekeeping and honey production, making the project lucratively valuable, especially in the short term.

Forests, inherently productive, pose an opportunity cost in re-afforestation efforts, occupying land with potential economic benefits. Traditional forestry economics views trees as a commodity, planted for eventual harvest. The optimal decision is for trees to remain in the stand as long as profits from standing trees surpass market interest rates. The Great Green Wall initiative, distinctively, aims not for harvest but to contribute to climate mitigation in the Sahel region, emphasizing environmental and economic effects.

Despite its climatic significance, the project faced slow progress since 2007 (UNCCD), partly due to unclear economic value amid critiques of its climatic benefits. Consequently, the project evolved, prioritizing a landscape with multiple benefits over the initial tree planting goal. Key benefits include social value through carbon sequestration, economic value of standing trees, and economic value from lands and ecosystems restored.

Analysis indicates significant progress in carbon sequestration despite the project's shift in focus and an evident economic drive in tree selection. The economic value of standing trees is determined by income generated from carefully selected species, such as baobab, balanite, African crabwood, gum acacia, tamarind, and African grape (Airey, 2020). As long as yearly product value exceeds the value of potential wood, and the growth rate surpasses market interest rates, the long-term economic viability remains intact. An often-overlooked economic value lies in the impact of trees on the ecosystem, encompassing the return of flora and fauna, water body restoration, increased land fertility, and improvements in crop yield and living standards.

In conclusion, the project should persist, attract investment, and even be replicated in other regions if social and economic benefits consistently outweigh costs (invested capital and opportunity costs). Crucially, the economic value of standing trees should perpetually exceed harvest value to provide farmers with a continuous incentive to tend the trees, preventing re-deforestation and its associated effects. Majorly, the value of community participation must be considered as the main focus of the development, since it will contribute to the success in many factors and sustain the project benefit.

REFERENCES

Airey, S. (2020, September 11). Great Green Wall Report is a rallying call for the future. TREE AID. https://www.treeaid.org/blogs-updates/great-green-wall-report-is-a-rallying-call-for-the-future/

CO2 emissions (kt) - nigeria, Djibouti, Eritrea, Ethiopia, Niger, Sudan, Chad, Mauritania, Senegal, Burkina Faso, Mali. World Bank Open Data. (n.d.). https://data.worldbank.org/indicator/EN.ATM.CO2E.KT?end=2020&locations=NG-DJ-ER-ET-NE-SD-TD-MR-SN-BF-ML&most_recent_year_desc=false&start=2020&view=map

Davies, J. (2017). Biodiversity and the Great Green Wall. IUCN. https://doi.org/10.2305/IUCN.CH.2017.10.en

Dlewis. (2021, February 17). The Great Green Wall: Its Impact and Need for More Support. Vision of Humanity. https://www.visionofhumanity.org/the-great-green-wall-its-status-impacts-and-need-for-more-support/

Doso, S. J. (2014). Land degradation and agriculture in the sahel of africa: Causes, impacts and recommendations. Journal of Agricultural Science and Applications, 03(03), 67–73. https://doi.org/10.14511/jasa.2014.030303

Great Green Wall initiative. UNCCD. (n.d.). https://www.unccd.int/our-work/ggwi

A green wall to promote peace and restore nature in Africa's Sahel region. UNEP. (2023, February 22). https://www.unep.org/news-and-stories/story/green-wall-promote-peace-and-restore-nature-africas-sahel-region

O'Connor, D., & Ford, J. (2014). Increasing the effectiveness of the "great green wall" as an adaptation to the effects of climate change and desertification in the sahel. Sustainability, 6(10), 7142–7154. https://doi.org/10.3390/su6107142

Raman, S. (2023, August 4). Progress is slow on Africa's great green wall, but some bright spots bloom. Mongabay Environmental News. https://news.mongabay.com/2023/08/progress-is-slow-on-africas-great-green-wall-but-some-bright-spots-bloom/

Schleeter, R. (2023, October 19). The Great Green Wall. Education - National Geographic. https://education.nationalgeographic.org/resource/great-green-wall/

WWF. (2021, June 4). 5 success stories that'll inspire you to join #GenerationRestoration this World Environment Day. WWF. https://updates.panda.org/restoration-stories-world-environment-day