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Restoring Degraded Lands and Utilizing Renewable Energy for Sustainable Water Management in Vihiga County.

County:	Vihiga County		
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Introduction

Land degradation refers to the deterioration of land quality caused by various factors, leading to a decline in its productivity and ecosystem services. This can also be caused by deforestation, overgrazing, unsustainable farming practices and urbanization. The impact of land degradation includes loss of soil fertility, reduced agricultural productivity, loss of biodiversity and increased vulnerability to climate change. The 2010 Constitution aims to achieve a tree coverage of at least 10% of the land area of Kenya. ¹This target was achieved by 27th May 2022 as announced by former

¹ <https://www.undp.org/kenya/press-releases/president-uhuru-sets-ambitious-30-target-forest-cover-2050-during-launch-kenyas-tree-growing-fund-and-campaign>



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president Uhuru Kenyatta during the launch of the tree-growing fund and campaign in Nairobi. The Former president proceeded to set an ambitious 50% target by 2050.

Counties were urged to take on the challenge and strive to reach the new target.

Vihiga County located in western Kenya occupies a land size of 563.8 kilometers square and has a population of 625,765 people.

The County has a 37% forest cover due to the different works and partnerships with the Kenya Forest Service. However, just like all other Counties in Kenya, Vihiga faces different challenges related to climate change including floods, landslides and drought.



Floods in Emuhaya Constituency

To support residents, the County has implemented various measures designed to enhance their resilience to climate change and implemented projects targeting the following four key thematic areas.

1. Strengthening of the legislative framework to guide climate action.
2. Education and awareness creation for the local community on climate change to help them identify related issues and encourage them to suggest potential solutions.
3. Developing plans and initiatives at the local level to promote climate resilience and protect the environment.

4. Establishing an accountable and dependable monitoring and evaluation system. Integrating Geospatial Information System (GIS) technology with County climate and environmental management to enable real-time monitoring of natural resources and conservation efforts.

In addition to having a County Climate Change Fund (CCCF), collaboration with development partners has allowed the County to expand its resources and implement more comprehensive climate change initiatives. The World Bank's Financing Locally Led Climate Action (FLLoCA) program has consistently supported Counties in enhancing their ability to respond to climate change and implement sustainable local climate action plans.

The table below presents an overview of climate financing data for Vihiga County. It provides detailed information on the sources, amounts, and allocations of funds dedicated to addressing climate change and supporting environmental sustainability within the County.

	Month	Amount	Source	Purpose
1	April 2023	11,000,000	The FLLoCA Program(CCIS 1)	Climate Institutional Capacity Building
2	April 2023	10,000,000	The CCCF Budgetary Disbursement	Co-Fund the CCIS Funds; obligatory as the VCCF Act, 2019(Fuel, Capacity Building, Awareness)
3	June 2023	10,000,000	The CCCF Budgetary Disbursement	Climate Resilience Investments

Through these funds, the County has successfully carried out various initiatives, including the installation of solar-powered water projects in the Mwimbona, Kimogoi, Evojo, Kaptech, Ebukhaya and Ipali communities. These projects have greatly benefited more than 1000 households by not only providing them with reliable access to water but also promoting sustainable energy use and contributing to the County's broader goals of environmental conservation and climate resilience. The



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solar-powered water projects have provided local schools with consistent water access, allowing students to concentrate on their education instead of returning home to fetch water. Further, the ample water supply has improved sanitation and hygiene standards, which has in turn decreased the prevalence of waterborne diseases among students.



Solar Water projects in Vihiga County

The County's solar-powered Kaimosi Water Scheme supplies water to Kaimosi, Maseno University, and Yala, saving KSh 250,000 each month compared to the previous cost of KSh 500,000 paid to KPLC for water pumping electricity bills. The scheme provides 2.5 million liters of clean, safe, and affordable



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water daily for drinking and irrigation, covering 80% of the area's needs. The remaining 20% is sourced from boreholes, rivers, and springs.

To achieve 100% complete water coverage, the County leverages its hilly terrain by utilizing gravity to guide water from the hills to a central collection point in Buhani. This collected water is then efficiently distributed to other areas for various uses, including irrigation. The strategy to use the gravity method has not only maximized the natural landscape for water transport, reduced the need for additional energy input, but also ensured a consistent supply of water to the neighboring communities.



Gravity water scheme at Buhani

Through the climate change resilience investment projects and limiting human interference in Maragoli Hills, the County has successfully restored 75 hectares of the degraded land. The County aims to restore 300 hectares over the next five years, which will expand the forested area significantly. In partnership with the Community Forest Association and the Department of Climate Change, the County has allocated a portion of the forest for apiculture. This investment is intended to generate additional income for the local community through honey production and related products.



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A picture of the Maragoli Hills

Implementation of the practice

- In December 2018, the County Government of Vihiga initiated an awareness campaign on climate change, specifically highlighting the critical role of tree planting in environmental conservation.
- In March 2019, the County collaborated with Anglican Development Services, Christian Aid, and UK AID to establish the Vihiga County Climate Change Fund Act 2019. This legislative effort was aimed at creating a dedicated fund to address climate-related challenges within the County.
- Recognizing the evolving needs and lessons learned from initial implementations, the act underwent amendments in 2021 to enhance its effectiveness and broaden its scope, ensuring more robust support for local climate action initiatives.
- In March 2021, the County established the Directorate of Climate Change, officially initiating the implementation of the Vihiga County Climate Change Fund Act.
- The County carried out a Participatory Climate Risk Assessment (PCRA), which produced a detailed report highlighting key climate risks, sources of vulnerability and essential adaptation measures.



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- This comprehensive assessment followed a series of important stages including gathering input from various stakeholders, analyzing climate data and identifying vulnerable sectors within the community.
- The County proceeded to develop a climate change policy and enact climate regulations. The policy was designed to provide a strategic direction and priorities for climate action, while the regulations provide specific guidelines and requirements that support the implementation of the policy, ensuring that all development initiatives are aligned with environmental sustainability goals.
- In 2023, the County unveiled its Climate Change Action Plan for 2023-2027, detailing a comprehensive strategy to tackle climate-related issues over the next five years. This plan emphasizes targeted initiatives aimed at reducing carbon emissions, promoting sustainable practices and enhancing resilience to climate impacts, serving as a roadmap for integrating climate considerations into all aspects of the County's developmental policies and operations.
- At the County level, there are established structures including committees such as the Vihiga County Climate Change Steering Committee, the Vihiga County Climate Change Planning Committee and the Department of Climate Change while at the ward level, Ward Climate Change Planning Committees is the main structure.
- The County-level structure provides strategic policy direction and technical coordination for climate change initiatives while the ward-level one facilitates the connection between County government and local communities during the planning and implementation of climate change adaptation projects.
- The ward-level structure is made up of elected members representing various segments of the community, including women, youth, Persons with Disabilities (PWDs), Faith-Based Organizations (FBOs), elders and Community-Based Organizations (CBOs). This diverse representation ensures that all voices and perspectives within the wards are considered during decision-making processes, creating a more inclusive and effective approach to planning and executing climate change adaptation initiatives at the local level.
- The County regularly hosts interview sessions on local radio stations and organizes cultural events to disseminate information to the public about climate resilience initiatives. These sessions focus on encouraging tree planting, educating residents on climate hazards, and promoting sustainable practices.



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A photo of Vihiga County Director of Climate Change conducting a radio interview.



Mainstreaming climate change through art

Results of the practice

- **Increased Awareness:** The regular radio sessions have heightened public awareness of climate change issues and the importance of resilience measures such as tree planting.
- **Improved Water Access:** The implementation of solar-powered water projects and the strategic use of the hilly terrain for water distribution have improved access to clean, safe water for drinking, recreation and irrigation.
- **Cost Savings:** The use of renewable energy sources such as solar and hydropower has resulted in significant cost savings for the county by reducing reliance on traditional power sources.
- **Enhanced Forest Restoration:** Efforts to restore Maragoli Hills and protect existing forests have contributed to increased tree cover and the rehabilitation of degraded land.
- **Economic Opportunities:** The investment in apiculture within the community forest provides new sources of income through honey and benefits the local economy.
- **Community Engagement:** The initiative has fostered a sense of involvement among local residents, encouraging them to take part in climate-related activities and become more proactive in sustainable practices

Lessons learnt:

1. Utilizing renewable energy sources such as solar has proven to be both cost-effective and environmentally friendly, emphasizing the value of sustainable practices.
2. Leveraging the County's hilly terrain for gravity-led water distribution has shown to be an efficient method for providing water to various areas without excessive energy consumption.
3. Collaborating with local residents, community forest associations and other stakeholders has been essential for the success of projects, fostering community ownership and support.



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4. Setting ambitious but achievable long-term targets, such as increasing forested areas and achieving 100% water coverage has provided clear goals and direction for ongoing efforts.
5. Investing in apiculture as part of forest management has demonstrated the potential for diversifying income sources and providing economic benefits to the local community.
6. Tailoring initiatives to the unique geographical features and needs of the area, such as using the hilly landscape for water distribution, leads to more successful outcomes.
7. Striking the right balance between environmental conservation and community development ensures that projects support both the well-being of residents and the health of the ecosystem.

Conclusion

Through innovative practices such as solar-powered water projects and gravity-led water distribution, the County has successfully improved access to clean water while reducing costs. The restoration of Maragoli Hills and the expansion of forested areas showcase the County's dedication to rehabilitating and preserving its natural resources. These efforts have set the stage for further progress towards achieving the County's long-term goals of 100% water coverage and increased forested areas.

Photos



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