Anulisa Claire A.
C.Anulisa@cifor-icraf.org
anulisaclaire@gmail.com
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POLICY BRIEF

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AGROFORESTRY SYSTEMS FOR LIVELIHOOD IMPROVEMENT AND CLIMATE CHANGE ADAPTATION IN ARID AND SEMI-ARID SAVANNAHS

The impacts of climate change and land degradation are significantly reducing the capacity of lands to support plant growth, sustain livestock grazing and deliver economic benefits through forestry and agriculture. In sub-Saharan Africa, approximately 50 million hectares of land is degraded annually, with an estimated cost of $99 billion (Nkonya et al., 2016). Degraded landscapes can be restored through Nature-based Solutions (NbS) like agroforestry, which leverage healthy ecosystems to enhance resilience and provide essential goods and services.

OVERVIEW

Arid and semi-arid savannahs are prone to land degradation and climate change impacts. With limited income opportunities and few livelihood alternatives, the coping capacity of local communities is constrained. This study was conducted in Tana River sub-County to determine the impacts of climate change on livelihoods and document ways in which sustainable agroforestry systems offer a coping strategy while providing livelihood benefits.

POLICY RECOMMENDATIONS

- Promotion of Agroforestry Systems
- Education and Training
- Disaster Risk Reduction Measures
- Investment in Irrigation Infrastructure

1. Agroforestry systems should be prioritised in policies as a means of climate change adaptation and livelihood improvement
2. Policies aimed at increasing awareness and understanding of climate change should be developed to empower farmers to adopt climate-resilient practices
3. Early warning systems need to be designed to reduce the risks of climate hazards like droughts and floods
4. Policy reforms should prioritise increased investment in irrigation infrastructure, recognising its critical role in supporting agriculture in arid and semi-arid areas

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KEY FINDINGS

- **Climate Change impacts**

Climate change is understood as changes in weather patterns. Local farmers in the Tana River sub-county share this perception and describe climate change in its various forms. Drought, floods, strong winds, and extreme temperatures are the major forms of climate change experienced in arid and semi-arid savannahs.

There has been a significant increase in temperature and the variability of precipitation patterns in this region. As agriculture is one of the sectors most vulnerable to climate change, these shifts have had devastating impacts on farmers' livelihoods.

- **Agroforestry systems**

In Tana River sub-county, Agrisilvopastoral systems (growing trees with crops and keeping livestock) and agrisilvicultural systems (growing trees with crops) are the main agroforestry systems practised in these regions. Silvopastoral systems (growing trees and keeping livestock) are present but rare as most communities in these areas are nomads.

- **Livelihood Improvement and climate change adaptation**

Agroforestry systems provide productive and protective functions which improve livelihoods and enhance climate change adaptation. The diversification into agroforestry tree-based enterprises supports environmental and socio-economic well-being.

NOTE

Agroforestry is the interplay of agriculture and trees. In dryland environments like savannahs, agroforestry systems are more resilient than the majority of agricultural production methods (Krishnamurthy et al., 2019). It is therefore essential to provide adequate training in agroforestry management to establish successful agroforestry systems.

CONCLUSION

The use of agroforestry systems is facilitating climate change adaptation for farmers in Tana River sub-county by harnessing a variety of productive and protective functions. The integrative nature of agroforestry diversifies resources and reduces vulnerability to climate change impacts. During extreme climatic events like droughts and floods, which are most prevalent in Tana River sub-county, agroforestry trees provide alternative sources of food, fodder, fuel and income, thereby improving farmers' livelihoods. Practising agroforestry thus benefits humans by contributing to the sustainability of both the environment and society.

REFERENCES

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