Sustainable land management in Kenya

Enhancing environmental services and food security through sustainable land management and TAVs: lessons from western Kenya

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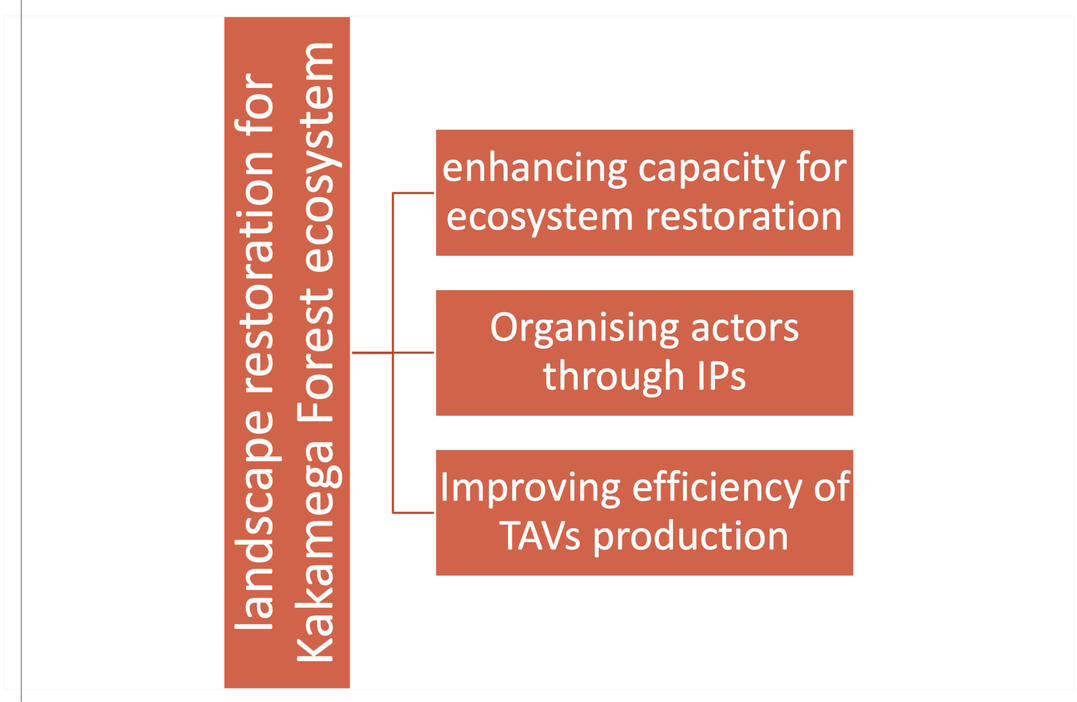
Introduction

- Following falling staple food prices and rising urban incomes, there has been a shift towards agricultural diversification, with urban centres in Kenya witnessing greater demand for traditional African vegetables (TAVs).
- However, this production system is taking place in an environment characterised by unabated extraction of forest resources and encroachment into Kenya's only tropical rainforest.
- Alarmed at the rapid depletion of the Kakamega-Nandi forest ecosystem, the United Nations Environment Program (UNEP), the Alliance for a Green Revolution in Africa (AGRA), the Kenya Agricultural Livestock and Research Organization (KALRO), three county governments of Kakamega, Vihiga and Nandi executed a consortium project funded by the Global Environment Fund (GEF) to promote sustainable land management in western Kenya.
- At the core of the project is scaling out of the sustainable production of TAVs in the farmlands surrounding the Kakamega Forest as an alternative livelihood and strategy for the protection and restoration of environmental services and assets.

Problem statement

- Globally, evidence is increasingly showing the major economic benefits that are unlocked when food and land use systems thrive in harmony.
- However, agriculture is increasingly becoming unsustainable in much of sub-Saharan Africa.
- In fact, agriculture is responsible for 63 percent of the annual 60 million metric tons of carbon dioxide equivalent ($MtCO_2e$) of greenhouse gas emissions in Kenya.
- Integrating biodiversity in agricultural development programming can increase the sustainability of interventions, amplify results and reduce costs.
- Kakamega Forest ecosystem is under extreme pressure from farming communities, as a result of which the forest is reducing in size and diversity.

Theory of change: UNEP-AGRA-KALRO partnership



Salient features of the Kakamega Forest ecosystem

- Impact scoping study was conducted in western Kenya counties using focus group discussions, key informant interviews, and questionnaires.
- Kenya's only tropical rainforest, the Kakamega Forest is a mid-altitude tropical rainforest, the easternmost outlier of the Congo Basin forests.
- Local communities are still dependent on the forest's ecosystem services, e.g., fuelwood, fodder and pasture for livestock, timber, medicinal herbs, and honey production.
- Communities also use the forest for basic traditional healthcare, with the most frequently used species being *Antiaris toxicaria* (used for preparation of clothing materials), *Harungana madagascariensis* (used as a dye and sometimes for medicinal purposes), *Zanthoxylum gillettii*, *Trichilia emetica*, *Olea capensis, Entada abyssinica* and *Croton macrostachyus*.
- The use of *Craterispermum schweinfurthii* as an aphrodisiac is widespread, as is the use of *Allophylus abyssinica* for treatment of wounds and for its anti-inflammatory properties, in addition to applying *Ensete edule* for measles and *Sapium ettipti*cum for burns.

TAVs in western Kenya – a potent value chain emerges

1. Traditional origins …

- Leafy and fruit vegetables form a significant part of the traditional diets of agricultural communities in Kenya.
- About 200 species growing naturally in Kenya are used as leafy vegetables.

2. Integral part of the rural economy …

- TAVs are increasingly part of the rural economy in western Kenya.
- TAVs account for between 45 percent (Nandi and Vihiga counties) and 52 percent (in Kakamega County) of all incomes registered by the farmers annually.
- In general, farmers set aside 18 percent of their land for the tillage of TAVs.
- Farmers generally rate TAVs as their second-tier crops, second in importance only to maize.
- TAVs are not only consistent source of income for families, but they are also very nutritious as they are rich in nutrients, e.g., vitamin A and iron.
- TAVs also allow farmers the wherewithal to plant quickly (seed).
- It is important to note that the average smallholder farmer in western Kenya earns more from TAVs than either maize or beans.
- At KES 50,000 (USD 500) per year in terms of income to the farmer, TAVs, in terms of annual revenues to the farmer, outperform maize (KES 34,287 (USD 324)) and bean (KES 22,198 (USD 222).
- Farmers in the region sell their TAVs produce to hotel and restaurant chains in the main towns, on fixed supply contracts.
- TAVs, therefore, offer unique opportunities to diversify farming systems, ensure food security and alleviate poverty, while increasing income and improving human health.
- Indigenous vegetables are seen as being tolerant to harsh environmental conditions and adapted to local conditions in the region.

3. But full potential not yet achieved due to constraints …

- Competition for land area with other crops.
- Lack of skills in preparation for consumption and storage.
- Unavailability of quality seed.
- Lack of appropriate husbandry practices.
- High cost of production: smallholder farmers in the region spend about KES 24,100 (USD 241) in each of the two growing seasons as costs of producing TAVs.
- Year-round productivity of vegetables is hindered by the agricultural drought that happens in between the two main cropping seasons.

Conclusions

- Oversize contribution of TAVs to farmers' incomes and the potential for further growth of this cropping system has been demonstrated.
- Increasing food demand in Kenya: the main drivers are the high rates of population and demographic growth and the sustained pace of GDP growth in the country.
- The study results show that project-supported farmers are better-off, more amenable to risk management and are more willing to invest in a high-input staple and vegetables production system.
- Improving primary production through enhancing the Innovation Platforms (IPs) is helping to deliver more TAVs to the markets.
- Innovation Platforms (IPs) serve as market interaction points for value chain actors, learning platforms for farmers on GAPs and other key issues.
- Farmers are reporting that the existing IPs are helping them in networking more within the value chains with actors and stakeholders.
- IPs also provide solutions as centres of aggregation and knowledge sharing by connecting TOTs to train farmers.
- With the increasing population in western Kenya, enhancing food production while protecting natural resources should be the foremost political agenda of every county government.
- County governments in western Kenya should consider investing in greenhouse technology for TAVs, in addition to promoting rainwater harvesting, to enhance production of vegetables during dry seasons.