REFORESTATION EFFORTS IN KENYA: A CASE OF SURURU/LIKIA FOREST BLOCK, MAU FOREST COMPLEX

Background

The Mau Forest Complex forms the largest closed canopy forest ecosystem in Kenya and is an asset of great national and regional importance.The Complex supports a wide range of environmental services crucial for the socio-economic development of the region. Despite its critical importance in sustaining current and future economic development, the forest complex has been adversely affected by extensive illegal, irregular and ill-planned settlements, as well as illegal forest resources extraction. Arising from this, KFS in collaboration with stakeholders has been undertaking efforts to mitigate against the effects of degradation with the ultimate aim to secure and sustainably manage Mau Forest Complex.

Approaches used in Mau reforestation

The objective of reforestation efforts was to restore degraded forest landscapes with a focus on rehabilitation of water catchment areas and restoring lost biodiversity. Specific interventions were dictated by the levels of degradation, availability of germplasm, related cost, size of degraded area and its proximity to an existing natural forest. In Mau complex, conditions ranged from bare soil to grasslands, bushlands, woodlands and modified natural forest. With regards to Sururu and Likia forest blocks, interventions focused on areas with bare soil and modified natural forest.

Bare soil- Mixed species planting

Interventions were prioritised on areas with bare soil as a result of illegal conversion from forest to crop cultivation. The exercise was conducted in partnership with Mau-Sururu-Likia community forest association (MASULICOFA). Efforts included propagation of appropriate tree seedlings by communities with the guidance of local foresters, which were thereafter purchased for rehabilitation purposes. This was an income generating activity for the communities and acted as an incentive towards embracing conservation efforts. Thereafter, mixed species planting was done, with species that previously colonised the area being prioritised. Characteristically, a spacing of 4m x 4m was utilised, though this spacing was either increased or decreased depending on the level of degradation. After planting, the area was protected by community scouts who worked closely with KFS rangers. Spot weeding around planted saplings was done twice a year to remove competition. Protection by community scouts also allowed natural regeneration to take place, thus accelerating the rehabilitation process. The regenerates are a subsequently protected and maintained through spot weeding to allow for faster colonization. A total of 1000 Ha of Sururu and Likia blocks were rehabilitated using this method.

BEFORE: April 2007- *Sururu-Likia Community Forest Association members planting indigenous tree seedlings in Sururu forest block.*

AFTER: July 2018- *Restored Sururu forest block*

A fish pond at Sururu forest: One of the Income Generating Activities (IGA's) provided to the CFA which motivated them to embrace conservation

Natural regeneration

This method was used in areas where natural forest was disturbed through illegal harvesting, leaving gaps in the forest cover cover. This method, which allows the site to deliberately restore itself, is applicable where there are sufficient young regenerates such as wildlings, saplings and mother trees. The strength of this method is to encourage the young regenerates to grow to maturity at a considerable lower cost. The steps used for natural regeneration are summarised below.

- Assessing the site to ensure there are adequate natural regenerating wildlings
- Determining whether competing species, such as invasive species are present and assess their prevalence
- Where competition appears to suppress the regenerates, removal of suppressants is done within a 1 meter radius
- Protection using community scouts and periodic monitoring to ensure for any further intervention, e.g. removal of suppressants.

Using this method, a total of 1500 Ha were restored in Sururu/Likia block.

Enrichment planting

This entailed planting of desired tree species in a modified natural forest or secondary forest in order to create a high forest dominated by desirable species. In most cases, the site already had remnants of trees that originally colonised the area, and introduction of species increased species diversity and population. Initially, an inventory is undertaken to determine the prevailing species diversity. Using an adjacent intact forest or indigenous knowledge as a benchmark, the species that are not represented/ or are underrepresented are thereafter introduced through gap-filling. Rare, threatened or species of high value were prioritised for introduction. Thereafter protection by community scouts and KFS rangers was done to insure protection. In Sururu/Likia block, a total of 1500 Ha was rehabilitated.

Constraints on Reforestation and Suggested Remedial Measures

Constraints	Suggested Remedial Measures
Drought	Strengthening early warning systems to for reliable rainfall forecasting Prioritise drought-resistant species
Competing land use especially forest vs agriculture	Secure forests through acquisition of title deeds by the government Sensitization of forest-adjacent communities on critical ecological/economic services offered by forests Participation of communities in forest conservation as key stakeholders
Poverty	Incorporate income generating activities in forest conservation activities to provide alternative livelihood
Livestock grazers interfering with regeneration	Establishing the carrying capacity of specific forest blocks Zoning of forest areas to protect areas earmarked for regeneration Intensified community policing in conjunction with government rangers
Invasive species	Develop a management regime for invasive species

Forest fires	Incorporate fire breaks while carrying out rehabilitation Strengthen fire management at forest station level

Lessons learnt

- Effectiveness of the method, whether natural or assisted, is dependent on the site condition at intervention. If the site is bare soil, then assisted is more effective as one is able choose desirable seedlings in terms of diversity and health, and establishment will be faster. This will however cost more than natural regeneration. In areas where the forest has considerable young regenerates and mother trees, then natural regeneration will be more appropriate and less costly.
- Stakeholder participation in planning, execution and monitoring of project implementation is key to success, ownership and sustainability of forest conservation
- For communities to embrace forest conservation initiatives whose benefits are long term and sometimes intangible (such as climate change mitigation), it is important to incorporate income generating activities as incentives to the conservation efforts