

Managing invasive *Prosopis juliflora* species through charcoal production in Kenya

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What is Prosopis?

1. Prosopis is a group of more than 40 species of trees and shrubs native to the deserts of North, Central and South America;
2. They are some of the many exotic trees that have been introduced into Kenya over the last 100 years;
3. They are highly adapted to arid and semi arid areas (ASALs) and belong to the legumes family;
4. They were introduced to rehabilitate degraded lands and to provide critical products such as firewood, roundwood, fodder, shade and other services;
5. About 5 Prosopis species were introduced into Kenya but *Prosopis juliflora* is the most widespread and invasive;
6. Covers over 2 million hectares of Kenya and spreading.

Typical invasion by *Prosopis juliflora*-Marigat, Baringo County



Closing the cooking energy and fuelwood gap

1. Prosopis is an example of conflict of interest species;
2. Kenya experiences a large gap of cooking energy of between 15 to 40 million cubic metres and continues to widen with rising population and increased land degradation;
3. Standing biomass of Prosopis is estimated at 22 million tonnes dry weight;
4. This scenario has informed the advocacy by Government to manage Prosopis invasions through utilization as a resource on the interim;
5. A total of 54 Charcoal Producer Associations (CPAs) have been established to harvest, process and trade in Prosopis based charcoal and other products.

Training of CPAs and other stakeholders



Making of sawn timber as
the most profitable option



Production of poles and charcoal as 2nd and 3rd profitable options



Promotion of efficient charcoal production methods for climate Change mitigation



Drum kiln

Half moon brick kilns



Harvesting and processing of biomass for industrial use in Baringo County (investors and private companies)



Use of pods as fodder and food to reduce seedbanks



Safeguards against abuse of rules and regulations

1. From 2009 to date, charcoal production by CPAs have been interrupted for flouting the rules and regulations that govern Prosopis based charcoal production under the Charcoal Rules (2009);
2. Other stakeholders in the forestry sector in Kenya have also been affected when they abuse existing rules and regulations governing sustainable extraction of the wood products in state forests;
3. In early 2018 to date, the Government enforced a ban on logging in state and community forests that also affected Prosopis utilization by CPAs;
4. CPAs and communities in Prosopis zones have petitioned the Government to provide a window to utilize Prosopis to stop further spread and to sustain their income from charcoal trade;
5. A safeguards document has since been developed for piloting. Roles of all the key stakeholders have been spelled out, including penalties to CPAs flouting the rules and regulations.

The National Prosopis Strategy and Action Plan

1. Prosopis spreads at an exponential rate of 15% and currently occupy over 2 million hectares and continues to spread;
2. Management and control through utilization has minimal impacts on spread and therefore needs introduction of other integrated methods;
2. KEFRI and partners (2015 to 2020) assessed the impacts of Prosopis on environment, livelihoods and land use systems in Eastern Africa (Kenya, Ethiopia and Tanzania): Drew experts from, South Africa, Australia, Switzerland and America (The Woody Weeds Project);
4. Results from Woody Weeds Project and relevant experiences were used to develop the draft National Prosopis Strategy 2021-2030;
5. Biological control agents (4) and selected chemicals (4) considered;
6. Widespread clearing and land reclamation to be carried out;
7. The strategy aims at reducing over 80% of invasions in 10 years (2021-2030) and activating aggressive prevention, early detection and rapid response mechanisms in addition to utilization as a resource as a secondary objective.

Difficulties of use of hand labour



Mechanical methods to clear large invasions and encourage active land use to be promoted under the strategy



Promotion of active land use on cleared areas to Prevent re-invasion under the new strategy



Need for biological control to reduce seed banks responsible for exponential expansion of new invasions every year (10 – 15%)



Adult *Algorobius prosopis* bruchid

Pods damaged by insects



Undamaged pods



Importation and registration of suitable chemicals to kill plants and stumps in areas where manual and mechanical removal is difficult

Spraying of young trees



Application on stumps



6. Recommendations

1. Continued facilitation of CPAs to use modern efficient methods of charcoal production as *Prosopis* populations are envisaged to gradually reduce;
2. Need for introduction and implementation of chain of custody and branding of *Prosopis* based charcoal;
3. Need to identify alternative tree species adapted to ASALs, fast growing with similar wood qualities with *P. juliflora* and non invasive.

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