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Charcoal and firewood save lives in drylands in Kenya

Turkana County:

Turkana County is located in north-western Kenya, and borders Uganda, South Sudan and Ethiopia. It is an arid and semi-arid land characterized by low rainfall and high temperatures. The county has a population of 855,399 (2009).

The area has been highly invaded by *Prosopis juliflora*, an invasive species that was introduced in the country in the 1970s to rehabilitate degraded areas and with time spread rapidly. It has been associated with several problems, but in some places such as Baringo County, it has turned out to be a great source of woodfuel.

Poverty and food insecurity: About 90% of the population in Turkana lives below the poverty line (Katindi, 2013). The food security situation is classified as stressed (IPC classification, in SRA report, Feb 2015) and Global Acute Malnutrition (GAM) rates, which range from 16.4% to 24.5%, are considered critical (Nutrition SMART survey, June 2015). About 27% of children <5 years are at risk of malnutrition (NDMA, 2014).

Charcoal for a living: There has been a shift in the main source of income from sale of livestock and products (22%) to sale of charcoal (38%) and wood products (18%). The poor and the very poor in Turkana derive 72% of their income from sale of firewood and charcoal (woodfuel) (NDMA, 2014). While some charcoal is sold in urban areas in Kenya, a significant proportion of it is sold at the Kakuma Refugee Camp. A charcoal ban in the county in May 2015 saw many lives lost from starvation as over 80% of household food is purchased with income from the sale of charcoal. The ban was lifted after 2 months. The county has a charcoal policy which was passed by the Cabinet.

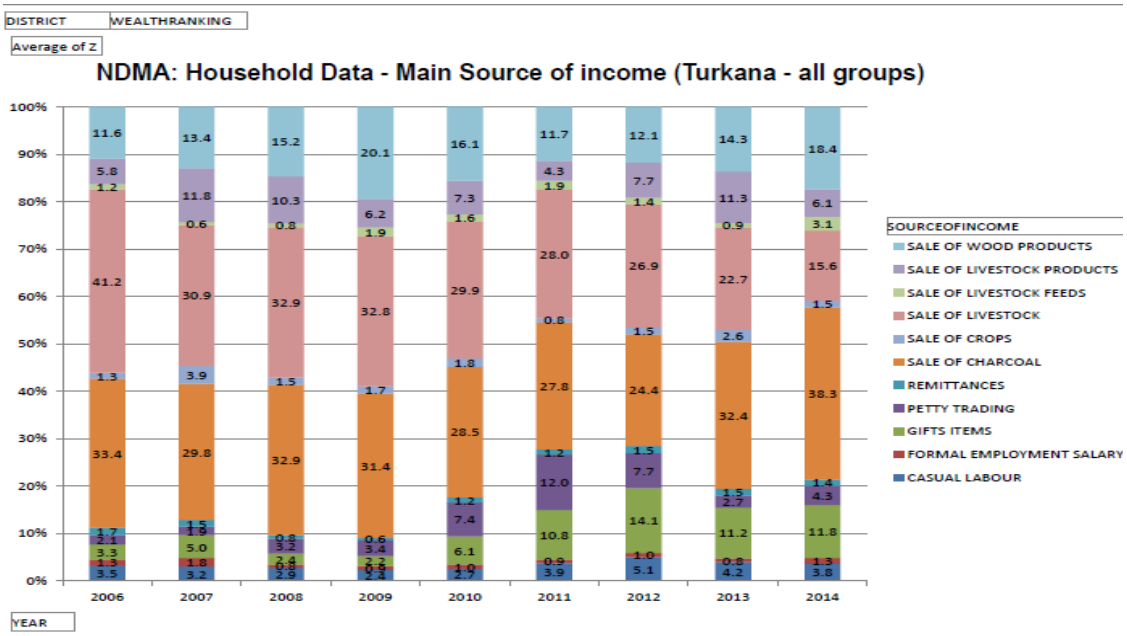

Figure 1. Main sources of income in Turkana, NDMA, 2014

Kakuma Refugee Camp:

It was established in 1992 and currently houses 185,000 inhabitants mainly from South Sudan, Ethiopia, Somalia and the Democratic Republic of Congo. The relationship between the refugees and the Turkana (host community) is mainly through trade, though strained by tension and conflict due to competition over scarce woodfuel resources. Each refugee receives 10kg of firewood every 2 months (sometimes 3-4 months) which is below 10% of the requirement of about 2kg per day. The refugee households meet the deficit by using plastic jerry cans as fuel, trading or bartering the not-enough relief food (6 bowls of maize {6 kg} is traded for a basin {10 kg} of charcoal). Some women are forced to walk for over 8 hours in search of firewood in the neighbouring area at the risk of being attacked or raped.

Safe Access to Fuel and Energy (SAFE):

This is a component of the project working on *strengthening linkages between refugee and host communities in Kakuma to improve incomes, food security and ultimately nutrition.* The initiative, which runs from 2015 to 2016, is led by the Food and Agricultural Organization of the United Nations (FAO), Kenya Forestry Research Institute (KEFRI) and the World Agroforestry Centre (ICRAF). It is funded by the European Commission's Humanitarian Aid and Civil Protection (ECHO) department. SAFE will initially concentrate on raising incomes of the host community through sustainable firewood and charcoal production, coupled with improvement on efficient use of the same by both hosts and refugees.

Reconnaissance study:

FAO (Philip Kisoyan and Maina Kibata), KEFRI (Nellie Oduor) and ICRAF (Mary Njenga) undertook the study on 14-18 September 2015 to establish people-driven strategies for successful implementation of SAFE. *First* the mission team had a meeting with Mr. Joseph Epuu Elim, Chief Officer in the Ministry of Environment and Natural Resources, Edward Juma, Director of Environment and Natural Resources and Stella Opakas, Director, Energy and Petroleum. The team was informed that the ministry was already working on improved kilns. The county officials also requested for a vegetation map of the county for effective charcoal production from *Prosopis juliflora. Second,* the team met Mr. Jesse Owino of KEFRI and Mr. Owino of KFS to learn about other initiatives in tree planting and exploitation of Prosopis for pods for livestock feed. The team also met staff from the Norwegian Refugee Council (NCR) who indicated that they would be interested in the SAFE initiative.

Third, the team held discussions with women from the Kakuma Refugee Camp and learned of their challenges which include low quality of charcoal and high cost of fuel (Ksh700-1200 {US$7-12} per bag of charcoal). The team noted their desire to access adequate and affordable fuel and efficient cooking stoves. Women in the camp indicated preferences on stoves that meet their needs. *Fourth,* the team visited Letea area where they found communities cutting down trees using fire and producing charcoal by piling up wood without adequate cover, resulting in low quantity and quality. It takes 3 days to split wood and another 4 days to burn the wood into charcoal with a yield of 1-2 bags which are sold at Ksh300 (US$3) per bag. One man complained, "*I have not had food for 3 days and it is difficult to split the wood for charcoal production."*

A woman commented, "*Charcoal offers us financial security as we purchase food on credit as soon as we set a kiln on fire with the hope of paying once we sell charcoal."* Another woman lamented, *"Unfortunately we do not have tools to cut down the trees and if we borrow from neighbours they ask us to first cut down trees for them."*

Fifth, the team participated in a partners' meeting on energy and environment at the camp where participants shared the work they are doing, including activities on improved cooking stoves. Participants were drawn from UNHCR, WFP, LOKADO and GIZ.

Figure 2. Cutting down trees using fire, splitting wood for charcoaling and cook stoves at the refugee camp

Modernizing charcoal and firewood value chain

SAFE project involves working with local communities, the county government, the refugees in Kakuma and their community-based organizations, and other stakeholders, to enhance charcoal and firewood socio-cultural, economic and enviromental sustainability. A holistic approach is being applied through working in every component of the charcoal and firewood supply chains.

Figure 3. Sustainable charcoal and firewood value chain in Turkana and Kakuma Refugee Camp

Activities in SAFE:

(i) registration of charcoal producer groups in partnership with the Department of Social Services and the County Government of Turkana, (ii) organizational development and institutional strengthening. (iii) charcoal and firewood supply chain analysis (iv) skills and knowledge enhancement at each component of the supply chain (v) management of vegetation for sustainable wood production (vi) participatory action research on improved kilns (vii) market linkages and partnership development (viii) voucher system for access to sustainable charcoal and firewood and (ix) participatory action research on efficiency and functionality of improved cooking systems. These efforts are aimed at making charcoal sustainable in Turkana.

Is it possible to make charcoal production sustainable? Yes and it is happening in Baringo County[1]

After introduction, *Prosopis juliflora* threatened the livelihoods of the local people and many cases were reported in court against the government seeking compensation for the damages that the tree had caused to livestock and humans. KEFRI Marigat, which has been conducting research on the management of Prosopis, established Farmers Field Schools which later developed into the Charcoal Producers' Association. The association is made up of five groups that work in collaboration with Kenya Forest Service (KFS). The local community has been empowered, through training workshops,

[1] The case study is based on a trip report dated September 2015 by Benson Lemosor of KEFRI, Karura

on conservation of indigenous trees and shrubs, management of Prosopis bushes, efficient charcoal kilns and marketing. Middle men from the community buy charcoal from the farmers at Ksh400 (US$4) per bag at specified charcoal collection centres. After that, businessmen purchase the charcoal from the middle men at the collection centre at a cost of Ksh450 (US$4.5) per bag and pay Ksh5 (US$0.05) per bag to the association for issuance of the certificate of origin. In 2014 the association generated Ksh817,210 (US$8172) from the charcoal business and reinvested it.



Figure 4. A well-managed stand of *Prosopis juliflora*, a drum kiln used in charcoal production and transportation of certified charcoal in Baringo.

References

Benson Lemosor (September 2015) Baringo visit on learning on Prosopis management

Katindi Sivi Njonjo, (2013). Exploring Kenya's inequality. Pulling apart or pooling together? Kenya National Bureau of Statistics (KNBS) and Society for International Development (SID). Nairobi, Kenya.

National Drought Management Authority (NDMA). 2014. Turkana County 2013/14 Short Rains Food Security Assessment Report –3rd to 13th February 2014.

Brief by: Mary Njenga*, Philip Kisoyan, Nellie Oduor, Maina Kibata and Miyuki Iiyama. October, 2015

*Contact: m.njenga@cgiar.org

World Agroforestry Centre

Food and Agriculture Organization of the United Nations

Kenya Forestry Research Institute KEFRI

World Agroforestry Centre, United Nations Avenue, Gigiri,
P. O. Box 30677-00100, Nairobi, Kenya.
Phone + (254) 20 722 4000, Fax + (254) 20 722 4001,

Email: worldagroforestry@cgiar.org
Website: www.worldagroforestry.org