



KENYA MARINE AND FISHERIES RESEARCH INSTITUTE

FRESH WATER SYSTEMS

FACT SHEET

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Upscaling the use of Chorkor smoking kilns through installation of two units at two landing sites (Napeget and Kalimapus) along Lake Turkana to mitigate fish post-harvest losses



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Background information

- Lake Turkana fishery has been associated with high fish losses arising from use of traditional and rudimentary fish handling material and equipment. Majority of fisher do dry fish in the open sun after salting, with some fishers preferring smoking method. However as much as fish smoking has been practiced along the Lake for a long time, the method is not widespread. In addition, those who practice the method use traditional smoking kilns hence produces inferior quality fish products. The traditional smoking is done in dug out structure with a wire mesh cover on top where fish is placed and smoking done to completion (Figure 1a). The product is therefore prone to contamination and inconsistent smoking process leading to reduced shelf-life and quality of the end product. In order to enhance the quality of the smoked fish products, KMFRI introduced smoking Kiln (Chorkor) in 2017 as an improved technology along the Lake for smoking fish to assist in reducing post-harvest losses. Smoking is known to prolong shelf life, enhances flavour, reduces waste and increases protein of fish products. Chorkor smoking Kiln is one of the improved technologies used in fish smoking to improve its quality and shelf life leading to increased income and reduced poverty levels to the fishers. The Chorkor smoking Kiln is made up of a smoking chamber or kiln and stackable smoking trays as well as an optional Banda house. The kiln can be constructed using local materials like bricks, cement blocks, burnt bricks or compressed earth.



a) Traditional fish smoking.



b) Chorkor fish smoking Kiln

- Contrary to traditional smoking kiln, the Chorkor Kiln use raised platform (kiln) with fish placed in a tray on top of the kiln and cover material to eliminate contamination

(Figure 1 b) with the end product exhibiting longer shelf life and improved quality product. It has been established that the fish products smoked using Chorkor smoking Kiln have appealing appearance and enjoys customer preference. So far the number of Chorkor installed along Lake Turkana are eight including two that were installed in the 2019/2020 financial year. Amongst the eight, two are at Kalokol Market and Longech, the other four are located at Nateria Emnyen Lobolo and Napucho respectively. The most recent were installed at napeget and Kalimapus landing sites respectively. The aim was to upscale use of Chorkor Smoking kilns in the two sites to mitigate post-harvest losses

Installation of Chorkor smoking Kiln at Napeget and Kalimapus landing sites

Sensitization of the BMUs in the two landing sites were undertaken to emphasize the importance of adopting the improved smoking methods. Administration of questionnaire on members of BMUs in both landing sites was undertaken to understand the fishery characteristics before the installation of the Chorkor. The members were then taken through trainings on good fish handling methods during fish processing. This included the emphasis on hygiene and sanitation requirements to ensure the end products are of good quality during and after smoking. Members were then taken trough smoking process after the construction of the Chorkor Kilns.



a) Construction of Chorkor underway b) Complete Chorkor undergoing final touches

Figure 2: Construction work being undertaken at Napeget (a) and almost complete Chorkor at Kalimapus landing sites respectively

- Both Male and female adults were found to be active in fishing activity at both Napeget and Kalimapus landing sites. However, the number of youth falling between 18 to 35 years were higher than the adults above 35 years (Figure 3a). The sector therefore attract the youth in large numbers indicating its potential in providing job opportunities to the youth and the old alike.

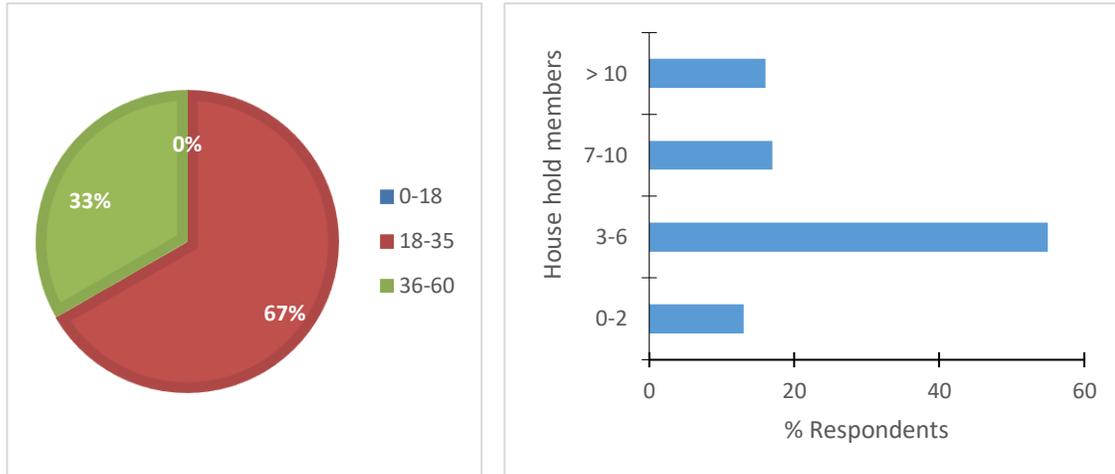


Figure 3: % composition of the fishers by age (left) and Household size per category at pooled together from the two landing sites

- Majority of the fishers were married with the number in their respective households being three and above. About 55% of respondents fell in 3-6 house hold members category. Taking in consideration that the fishing community here depends almost entirely on fishing activity, its management is of great importance in supporting livelihood here.

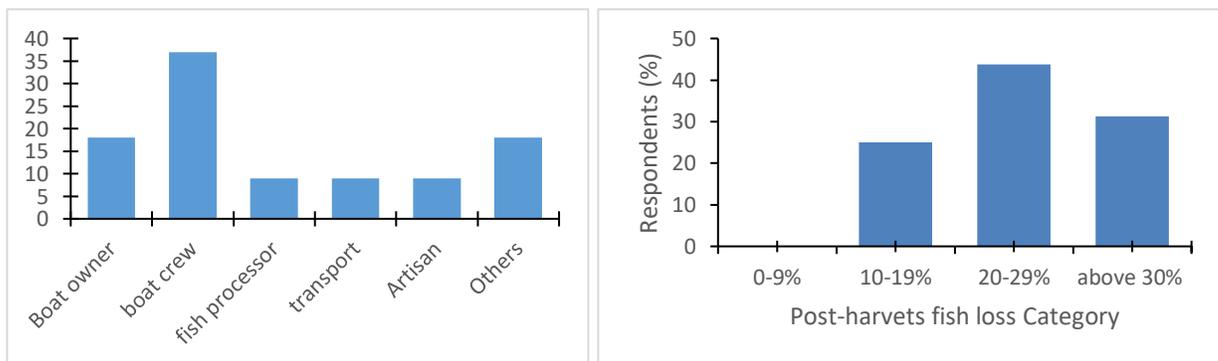


Figure 4: Occupation of fishers and % Post-harvest losses recorded at Napeget and Kalimapus landing sites along Lake Turkana

- Boat crew were the highest number amongst the fishers with 37% being recorded. Boat owners followed at 18% while fish processors, transport and artisans recording 9% each.
- On post-harvest losses, about 44% of the respondents reported fish losses of between 20-29%. This was followed by 31% of respondents reporting above 30% fish losses. It means that fish losses remains high averaging 30% in these landing sites. The need for further effort to reduce the losses is therefore eminent.
- Installation of the two Chorkor smoking Kiln saw 23 BMU members sensitized and trained on the use of Chorkor. Two complete Chorkor kilns were constructed at Napeget and Kalimapus respectively (Figure 5 a &b)



Figure 5: complete Chorkor smoking kilns at Napeget (right) and Kalimapus (left) landing sites Lake Turkana

Each kilns measures 16 x 4 x 2.5 and has the capacity to dry 100 to 115 Kg at a time. The smoking takes 1 to 1½ days to dry using Chorkor. The capacity of the Chorkor could also be increased by putting additional trays on top of the lower one. This doubles the smoking capacity to twice as much. Chorkor improves the hygiene of the product and reduces the fuel wood usage. Improves quality and shelf life of the end product.

Conclusion

- ❖ Two complete Chorkor smoking kiln was successfully installed in Napeget and Kalimapus landing sites for use in mitigating fish post-harvest losses.
- ❖ Both youth and old members of the fisher community embrace the use of Chorkor as an improved fish processing method

- ❖ Capacity building of the fishers on good fish handling practices was successfully undertaken.

Recommendations

- ❖ The number of Chorkor in use are still few hence further upscaling of Chorkor need to be undertaken to reach the majority of the BMUs along the Lake.
- ❖ There is need to invest in cold chain facility along the Lake Turkana to allow fishermen access ice for fish preservation.
- ❖ Assessment of post-harvest fish losses along Lake Turkana should be undertaken to provide information for other innovative intervention and approaches in mitigating the fish losses
- ❖ Capacity building of the fisher folk on hygiene, sanitation and good fish handling practices should be conducted regularly to enhance production of quality fish products
- ❖ Value addition, packaging of good quality fish products and market linkages is essential for fish marketing and diversification and hence be explored.
- ❖ Introduction of use of raised racks at various beaches for drying fish as first line in good fish handling be encouraged.