

Reduction of greenhouse gases and deforestation related to food processing in sub-Saharan Africa

What is new about this approach?

A combined smoking and drying installation has been constructed and tested in Tanzania and Kenya with good results. The advantage of the installation is that food smoking uses around 80% less firewood than the traditional smoking kilns. In Tanzania alone around 450.000 cubic meters of firewood is used annually for fish smoking, which releases around 700.000 tons of CO₂. By using the new installation the CO₂ release could be reduced to about 140.000 tons, or a reduction of about 560.000 tons.

The new installation is considerably inexpensive and constructed by local material, which is important for the poor fisheries communities.



Specific challenge

In sub-Saharan African countries drying and smoking of fish is the main method of fish preservation. Either the fish is dried on sand or on lifted racks or smoked under open fire. The traditional food processing technique delivers products that are of inferior quality and in many instances, products that are unfit for human consumption due to high pathogenic contamination and formation of carcinogenic compounds during the smoking process. The traditional fish smoking procedures uses extensive volume of firewood, releasing considerable amount of green-house gases into the global environment. In Tanzania alone it is estimated that around 450.000 cubic meters of firewood is being used annually, just for smoking fish. This amount of firewood releases around 700.000 tons of CO₂ and on a regional bases it could easily be estimated that the annual CO₂ released could be over 2 million tons. Deforestation in the region is furthermore decreasing the possibility of capturing CO₂ from the environment.

Several projects have been introduced in the sub-Saharan area, aiming at reducing the consumption of firewood in fish smoking but unfortunately have not been able to show acceptable results. This may be due to the fact that they were all based on the existing technique. A new technique was first introduced by Matis (The Icelandic Food Research and Innovation) in an NDF financed project in Tanzania and further developed and tested in Tanzania and Kenya with good results. This technique uses around 80% less firewood than the traditional method and gives much higher quality product. The technique is based on a one unit smoking and drying process.

Scope

Two Governmental Institutions, the Kenya Marine Fish Research Institute (KMFRI) in Kenya and the Tanzanian Fish Research Institute (TAFIR) in Kigoma, Tanzania have shown interest in further development of the new smoking/drying unit with the aim of extending its use to all fish processing persons and fisheries communities in the two countries. The cooperation is though pending on possible funding.

The new smoking/drying unit has been introduced and tested in three short training courses in Tanzania and Kenya, courses funded by the United Nation University, Fisheries Training Programme in Iceland (UNU-FTP). The new technique caught the interest of all participant immediately and requests for further assistance in expanding the knowledge on how to construct and operate the unit has been put forth if funding can be located.

Further studies on the new smoking/drying installation and how it affects the physical and chemical composition of fish is being conducted by a Kenyan student, who is conducting his PhD studies at the University of Iceland and guided by academic professionals at Matis. His work is partly financed by the UNU-FTP and Matis but further funding is being pursued.