Renewable energy and food security in Sierra Leone:

a case study of the Artisanal Fishing Industry

Food Security in Sierra Leone

Sierra Leone is ranked 94th out of 105 countries on the global food security index and scored,

- 19.8% in protein quality
- 29.1% in micro-nutrients availability
- 36.8 in diet diversification
- Globally 1.3 billion tons of food is lost or wasted between field and plate.

RE4Food Funded by EPSRC (Engineering And Physical Sciences Research Council) uk

PATNERS:

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Practical Action consulting Limited Environmental foundation for Africa

MAIN AIM Reduce waste through increased use of renewable energy

PROJECT FOCUS IN SIERRA LEONE

RE4Food Sierra Leone focuses on fish smoking. Looking at different fish species and energy utilization

RE4Food – Activities

Technical – We measure efficiency of fish smoking houses (bandas) Social – We conduct workshops on "indigenous technical knowledge" Economic – valuate time and resources

Environmental –We assess positive and negative impacts of resources used.



Indigenous Technical Knowledge – fishermen, fish processors and fish traders exchanging opinions.

Indigenous Technical Knowledge Efficiency of dryer/smoker depends

on:

- Time of year (ie wet or dry season)
- Type of fish species
- Quality (freshness) of fish
- Type of smoker(traditional or
- improved)
- Type of wood (Farm, mangrove or forest)

Experimental Method Includes,

Measured weight of fresh and smoked fish and amount of wood used. Water loss per unit of wood used. Weight of dry fish per unit of wood used.(both measures highly correlated)



Weighing fish before smoking



A local stack (banda) smoking herring



Weighing fish after smoking

Experimental results vs ITK Time of year Size of load Species of fish Type of dryer Freshness of fish Type of gear Type of wood etc

- not confirmed
- not confirmed
- confirmed
- confirmed
 - unable to test
 - insufficient data
 - insufficient data

Unexpected Result The improved smoker (banda) at Tombo uses half the wood of a traditional smoker (banda)

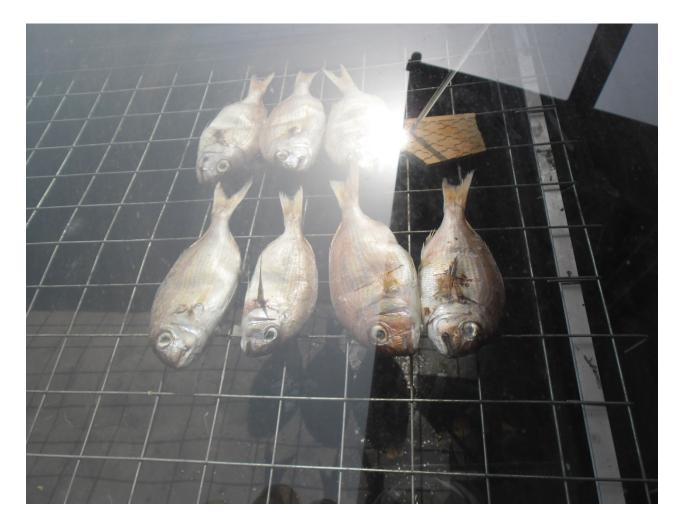
Money saved on wood not enough to cover extra labor costs!

On-going work:

Experiment on efficiency of solar dryer in drying food stuffs.

Activities with solar dryer:

We Dry: Ripe mango chips. Ripe pineapple chips. Sweet potatoes to powder. Chinese yams to powder. Different fish species to safe moisture content.



Fish been Dried in solar dryer



Side view of moveable solar dryer



Fresh weight of fruits been determined



Dried fish being weighed



Chinese yams in Dryer



Chinese yams powder

Acknowledge:

I wish to thank colleagues in the RE4Food project for their collaboration and colleagues at Njala University for continued support.



Solar Dried fish

END

THANK YOU

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