

**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

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uk

PATNERS:

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Jomo Kenyetta University of
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Kwame Nkrumah University of
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Stellenbosch University

Kassel University

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 – value 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 – not confirmed
- Size of load – not confirmed
- Species of fish – confirmed
- Type of dryer – confirmed
- Freshness of fish – unable to test
- Type of gear – insufficient data
- Type of wood – insufficient data
- etc

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

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Solar Dried fish

END

THANK YOU

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