RE4Food (Renewable Energy for Food Processing)

2nd Stakeholder workshop held on the 2nd March 2016 at the EFA Learning Center Banga Farm, Sussex.

Andrew Kallon

Njala University

kallon1977@gmail.com

Background:

The workshop held on the 2nd March 2016 was a knowledge dissemination event in line with **task 4.3 (Hold multi-stakeholders network knowledge dissemination event).** The work shop attracted a total of forty two participants from the two major fishing communities of Tombo and Goderich and a few staff from Njala University and Sussex Community.

The aim of the workshop was to discuss and show case a number of new innovative energy efficient technologies that can be used in rural food processing, and also to sound the opinions of the stakeholders about the new innovations. The new technologies includes,

a. Locally made solar dryers (use for fish and fruit drying)
b. Locally made clay stoves (That uses little charcoal for cooking)

These new technologies aimed at providing remedies to some of the energy challenges highlighted by fisher fox during the multi stakeholder's network knowledge gathering event held in 2013.

STEP I

Different designs of solar dryers that can be used in food processing as well as energy efficient clay stoves were presented to stakeholders. The details of the presentation includes,

i. Materials used to construct the dryers
ii. Cost of materials
iii. Heat retention capacity of dryer
iv. Length of time a product takes in the dryer before dried
v. Durability of dryer
vi. Shelf life of products and finally
vii. Products that have been processed in the driers such as, ripe plantains chips, ripe paw paw chips, and fish were displayed and form part of the presentation.

STEP II

Step two involves distribution of solar dryer products among participants to enable them feel their texture, taste, and color. This was done to give opportunity to participants to compare between taste of products processed outside the solar dryer and those processed in the dryer with different treatments. Among the products were,

I. Ripe plantains chips:
   a. Treated with sugar syrup
   b. Treated with lime juice
   c. Not treated
II. Ripe paw paw chips:
   d. Treated with sugar syrup
   e. Treated with lime juice
   f. Not treated
III. Dried Herring fish
IV. Sweet potato chips and powder
V. Chinese yams powder respectively.

STEP III

Associated renewable energy technologies such as, improved and rocket stoves were presented. The stoves are made up of clay with metal sheets around. The stoves were design in a way that, more heat is generated and conserved for cooking with small amount of charcoal.

FOCUS GROUP DISCUSSION ON WHAT THE PARTICIPANTS HAVE SEEN IN STEPS I, II and III RESPECTIVELY

Since the primary focus of the workshop was to disseminate knowledge by introducing new technologies to our stakeholders, we also strongly believed feedback from participants is essential to determine whether the new innovations are relevant to their line of business. If relevant what improvement is needed and if not what new direction is expected to take. This was enhanced by focus group discussion where the following responses were made.

Responses to Solar Dryer technology: The solar drier technology was accepted by majority in the meeting looking at the advantages it has over the use of fire wood for food processing such as,

i. It is economical ie cheap to construct
ii. It is at the disposal of the owner ie always ready as compared to fire wood
iii. Completely free from health risks such as blindness due to the effect of smoke to the eyes.
iv. Solar dryer products especially fish has a relatively longer shelf life than smoked ones.

These advantages of the solar dryer put the technology above the traditional practice of food processing that involves the use of firewood and hence was generally accepted.

But not withstanding, a number of concerns were raised about the efficiency of the solar dryer technology, among them were,

i. What quantity of fish a solar dryer can dry during large catch
ii. How long will it take to dry a given quantity of fish in a dryer

iii. Will it be efficient during the rainy season
iv. Can very large fish be dry in the dryer etc.
v. How to get the solar dryer

From the discussion, it was recommended that there is a need for improvement on the technology so that some of these concerns will be addressed.

Responses to Solar Dried Products (Fish & Fruits): Taste perceptions of dried fruits and fish were done by participants. Solar dryer products were distributed among participants to taste and comment, and hence the following comments were made;

I . SOLAR DRIED FISH: Participants perceptions on taste, texture and other physical features of solar dried fish vary from person to person. Women were more critical and perceived taste and other features differently. However, some popular perceptions includes but not limited to the following,

i. Taste of solar dried fish is less than fish smoked in traditional fish smoking stacks.
ii. Flavor in smoked fish increases palatability but absent in solar dried fish
iii. Solar dried fish attracts less flies compared to smoked fish
iv. Dried tissues of smoked fish are easy to chew compared to solar dried fish
v. Tough dry tissues of solar dried fish indicates longer shelf life than smoked fish
vi. Most participants testify that the differences in taste between solar dried and smoked fish are insignificant.

II. SOLAR DRIED FRUITS: Responses to dried fruits was amazing in that all those present perceived solar dried fruits as a new thing that deserves attention and in-depth research. From the focus group discussion, it was strongly believed that solar dryer technology can be more appropriate and efficient for fruit drying than fish. These beliefs came up base on the samples of dry fruits they saw and tasted. The following comments about dry fruits were noted,

i. Plantain chips taste good with honey flavor
ii. Most prefer plantain chips not treated with sugar syrup
iii. Hope to see solar dried plantain chips in the markets

Responses to improved Rocket stoves: Improved and rocket stoves were associated renewable energy technology also presented in the workshop. The technology geared towards minimizing the charcoal use for cooking, the stoves were presented by a staff member of Njala University physic department as part of his PhD work, it was a great learning experience.

Ripe Plantain Chips in Solar dryer

Opening Remarks by Dr. Richard Wadsworth

Workshop In session

Samples of Solar Dried fish been tasted

Samples of Solar Dried Plantain and Papaya chips were distributed and tasted

Dryers displayed on the ground

Rocket stoves been presented and tested