



Solar Cooking Foundation the Netherlands (SCN)
Horn of Africa Environment Centre and Network Integrated
Sustainable Solar Cooking (ISSC) Project

First recording of ISSC project essentials and proceedings

HoA-ReC/N field visit October 23 – November 14, 2009 by Clara Thomas

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November 29, 2009

Attachments site visits to:

- a) *ISSC Production and Training Centre Debre Zeit – Bishoftu*
- b) *Vocational Technical Training Center Bourayou, Addis Ababa*
- c) *Awura Amba Community, Northern Highlands, ORDA sub cluster*
- d) *Tigray, Northern Highlands, Women Association of Tigray*

Distributed to: Ms Janny Poley, Dr Araya Asfaw, Abiy Ashenafi, Ephrem Bekele, Satishkumar Belliethathan, Mesfin Kinfu, dr Mekuria Argaw, Bilhat Leta, Ato Gullilat Aberra, AtoTabor Wami, Leila Shikur, Betsai Sissay, Bereket Dessie, Solar Cooking Fd Netherlands: Board, Working group and Advisors, Kozon fd. Neth. Wilde Ganzen, ICCO – Gert de Gans,/ Andre Vording.

1. History in Ethiopia and introduction

'Hereby I offer you my observations and reflections about my HoA-ReC/N field visit. The result is in fact more like a terms of reference for the continuation of project development and management'

December 2006 Pisda requested Solar Cooking Netherlands (SCN) to introduce Solar Cooking in the area Debre Zeit / Bishoftu. In February 2007 the pilot project started in which 450 households participated. SCN trained five instructresses and PISDA staff on 'How to use Solar Cookit and Water Pasteurisation Indicator (WAPI)'.

Upon successful introduction and end users acceptance evaluation, PISDA received funds from SCN to build a Production and Training Centre in 2008. Solar Cookits, WAPIs and insulated hay baskets are manufactured in this Centre and also public promotion activities as well as solar cooking training programs are performed.

In august 2009 a total number 1590 households participated in the program now called 'Integrated Sustainable Solar Cooking'.

Initiated and coördinated by HoA-ReC/N and the Royal Dutch Embassy, Ms Janny Poley initiated in March 2009 an inspiring Sustainable Solar Cooking conference that took place in Addis Ababa.

The conference resulted in an initiative to start up ISSC in six different clusters in Ethiopia, South Sudan, Djibouti and Somalialand / Puntland. HoA-ReC/N will take the lead in realizing project management and ISSC program development. Being expert in ISSC production, training and marketing SCN excepted the role as advisor.

Since the conference SCN communicated regularly with Abiy Ashenafi in the context of setting up ISSC project initiatives. October 2009 Abiy started his new function in HoA-ReC/N as general coördinator sub unit Renewable Energy. ISSC is part of this sub unit.

It is against this background that SCN was invited by HoA-ReC/N to support and build up capacity of PISDA staff in the Production and Training Centre Debre Zeit, such that the PISDA ISSC centre will serve as a continued and strong model (prototype) for all HoA-ReC/N projects.

2. ISSC sustainability essentials

Production and distribution

- → **During the first years all production / training centres should be coordinated by the HoA-ReC/N coordinator.**
- To start up ISSC production and distribution and sales it is necessary to subsidize investment costs (working spaces, equipment, tools, furniture etc); this also includes the purchase of raw materials for ISSC appliances (cardboard, aluminium foil, bamboo, cotton cloth, raw cotton, etc).
A principle policy for projects is to never donate ISSC appliances. The cost price of materials is fully paid for. As a first step minimum subsidies may be given. Better is to start a micro financing/ revolving loan fund arrangement from the beginning to pay for the full price of the appliances.
- The approach should be: a business approach instead of a charity approach
 - Investment costs
 - Direct production costs
 - Calculation of margin available for overhead expenses
 - Income from sales

- Up till now ISSC appliances have been subsidized and policy of PISDA was that end users only paid a small amount (30%) of the full cost prices. So 75% has been subsidized to encourage women to buy. In terms of sustainability this should be changed towards an absolute minimum subsidy. End users should be informed about the money / time they save money through considerable reduction of firewood. Women should be able to pay in instalments receiving the appliances at the first instalment payment.
- Quality control and development by a qualified technical expert is an essential priority during the whole production process. The formulated standards in ‘Manual How to manufacture CookKit and WAPI’ will be strictly observed.
- Production of ISSC appliances requires specific skills and experience. Manufacturers should be selected on basis of these specific skills. Each appliance requires its own specific skills.
- Manufacturers should be paid on basis of standard quality and price.

Instruction and training

- → ISSC representatives from different geographic areas will exchange experiences. This will be arranged by the HoA-ReC/N issc coördinator.
- Follow up courses (SCN or other) are an essential element of training.
- Integrated Sustainable Solar cooking is a new way of cooking. This ‘New Cooking’ requires permanent instruction and training of end users. End users need to change habits in cooking having a socio- cultural impact on daily life. Sales is combined with instruction organized and performed by ISSC trainers.
- Instruction and explanation should be focussed on how to cook daily traditional food; women will exchange experiences and recipes.
- Instruction and explanation will specifically be focussed on how women can save and earn money by ‘New Cooking’.
- New trainers should be trained by ISSC experts.
- All trainers have and use the manual ‘How to use Integrated Sustainable Solar Cooking’ They should not focus on the CookKit only but integrate all appliances.
- Trainers are exactly the right persons to participate in public promotion and marketing activities.

Public promotion and marketing

- → HoA-ReC/N has a key function in organizing public promotion activities, networking, and inviting people to the production and training centres in the different areas.
- Production and training Centres are the proper place for receiving visitors, groups, ngo’s, governmental representatives etc.
- Production and training Centres should organize their own PR by actively inviting people, by distributing ISSC flyers, by organizing demonstrations etc.
- ISSC women trainers are the right persons to demonstrate New Cooking in public meetings, in workshops, conferences, markets etc.

HoA-ReC/N ISSC management

- → HoA-ReC/N has the general coordination and management tasks in realizing production, training, follow up, monitoring and evaluation, public promotion.
- During the first years all production / training centres are coordinated by HoA-ReC/N ISSC coordinator.

- ISSC representatives from different areas could build up expertise exchanging experiences coordinated by HoA-ReC/N. Recommended is to organize follow up courses (SCN and other)
- HoA-ReC/N has the key function in initiating / organizing public promotion activities, networking, and inviting people to the Production and training centres in the different areas.
- Solar Cooking Foundation fully accepts being advisor / consultant in all phases of project development.
- An overall project plan respectively plan of action on each ISSC initiative (Bourayou, Awura Amba, Tigray) needs to be developed and agreed.
- An overall budget respectively budget on each ISSC initiative (idem...) needs to be developed and agreed as a basis for project fundraising activities.

3. HoA-ReC/N ISSC kick off

Scope, objectives, roles and responsibilities

(Memo Cooking EPP, april 8, Abiy Ashenafi).

The conference in March 2009 was the kick off for up scaling ISSC in the Horn of Africa. Scope was formulated: ‘The project deals with integrated sustainable cooking and other technologies like insulated hay baskets and fuel saving stoves.’

Objectives:

1. Formulate fundable projects for ISSC;
2. Clearly define role and responsibilities of organizations in setting up the project, accessing fund, implementing / reporting of activities
3. Design a project in such a way that carbon credits are accessed. Either through new methodologies or through voluntary carbon credits;
4. Build experience on how IS(S)C EPPs can be formulated and implemented.

Roles and responsibilities (summary):

- a) HoA-ReN members are responsible to formulate project proposals ;
- b) HoA-ReC is responsible for coordination, linking the projects, requesting and administrating the project;
- c) SCN will give technical support to the members;
- d) HoA-ReN members has the ISSC lead in each cluster;
- e) ISSC Production and training Centre: each cluster has a learning and production centre.
- f) There are some partner organizations.

Eight HoA-ReC ISSC clusters

| | Cluster | Lead organization | Production/ training Centre |
|---|-----------------------------------|----------------------------------|---|
| 1 | Addis/ surround | Enda | Bourayou / PISDA Debre Z. |
| 2 | Rift Valley | Anceda | VoCDA |
| 3 | Northern Highlands | 1. Tigray 2. ORDA sub cluster | 1. Women association of Tigr 2. Awura Amba |
| 4 | Djibouti / Somalialand / Puntland | Djibouti nature | 1. Djibouti nature 2. BVO 3. Kaloo |
| 5 | Physical / Visual challenged | EWNHS/ HoA-ReC | ENDAN/ PISDA Debre Zeit? |
| 6 | Institutional | HoA-ReC | Bereket Solar/ GTZ |

| | | | |
|---|----------------------------------|---------|------------------------------|
| | cooking | | |
| 7 | RD South Sudan | HoA-ReC | Dr Salih, GTZ, Bereket Solar |
| 8 | Health sector? Min. of Health | ? | ? |

4. Summary of ISSC program development

ISSC project in Debre Zeit ISSC Production and training centre (see attachment a)

As a HoA-ReC/N member, PISDA will gradually be integrated in the HoA-ReC/N upscaling programs. As such PISDA will eventually be independent from SCN at the latest 2011. PISDA Solar Cooking Centre will be a ISSC production and training model for ISSC program development.

Recommendations

- SCN strongly recommends a more business like approach with a well managed micro credit program. End users should pay the full cost price, in instalments etc.
- PISDA should take up the challenge to enlarge the ISSC market by public promotion, thus increasing the production on ISSC products and develop small enterprise. The recently assigned deputy manager functions in the overall management of the ISSC centre.
- ISSC trainers are selected on specific teaching learning skills on individual and group level. Senior trainers are responsible for follow up, quality control, marketing and public promotion on area level and being staff members, they train groups from other parts of Ethiopia and the Horn of Africa.
- Carefully selected manufacturers are responsible for the supply of Solar Cookits, Solar Boxes, WAPIs, Insulated Hay baskets and Fuel Saving stoves production.

Vocational Technical Training Centre (VTTC) Bourayou, Addis Ababa (see attachment b)

November 5 a meeting on ISSC in VTTC took place. Present: Mr Mulugeta (director) and mr Solomon (fss expert for many years) of VTTC, mr Abiy Ashenafi, mr Yissehak Demissie of HoA-ReC/N, mr Bereket Dessie of Bereket Solar and Clara Thomas, SCN – HoA-ReC/N consultant.

Representatives of VTTC attended ISSC conference March 2009 and expressed their interest to start up solar cooking, also based on their long technical experience developing and producing fuel saving stoves and recently solar cookits and solar boxes.

The **purpose** of the visit is ‘to establish how we can start the production of CookKits as soon as possible at the centre’.

Some first comments:

- To guarantee quality of Solar Cookit production, the manual ‘How to manufacture Solar Cookit and WAPI’ should be the instruction guide during training and all quality control activities. (translation in Amharic, Ato Yissehak Demissie)
- VTTC should start at the same time with manufacturing insulated hay baskets. Manual: ‘How to use ISSC appliances’ including designs for Insulated hay baskets / heat retention baskets. (translation in Amharic, Ato Yissehak...)
- Marketing, sales should be focussed on the complete ISSC package: Solar cookit, hay basket, mirt and improved Bourayou Fss rocket stove combined with instruction and workshops on the integrated use of these appliances and on how to build them.
Coordination by VTTC., and could organize monthly workshops in this location.
- VTTC should develop together with Ato Bereket Dessie a monthly quality control and development meeting, using standards described in manual: How to Manufacture Solar Cookit and WAPI’ (SCN, 2009).

Awura Amba community (see attachment c)

A visit was organized to Awura Amba, 600 km north of Addis Ababa. The community of Awura Amba has been settled originally in the sixties and after a long history since 2005 resettled in the Northern Highlands area.

119 families live spread over the whole area with a population of in total 412 people and beside many donkeys and 6 cows.

Representatives attended the conference in March and were very motivated starting up ISSC.

Some first comments:

- Referring to the objectives of Awura Amba and care for environment and nature, ISSC perfectly fits in AA philosophy. Motivation is present and so a challenge to start up introduction.
- Focus should be on Insulated hay basket and Solar Cookers: CooKit as well as Solar box; the latter as a cheaper model manufactured from natural available materials: square hay box type (model SCN – sent design / picture);
- Investigation and estimation of the ISSC market in the area around Awura Amba should make sense before investments in building space, furnitures etc takes place.
- The design FSS of Awura Amba can be considered as a perfect ISSC product for Ethiopia. Awura Amba could organize regular workshops to teach on how to build this FSS. Or they could start a training centre as part of the ISSC project.
- Other ISSC initiatives could buy ISSC appliances from Awura Amba.
- Awura Amba has a very positive reputation and thus ISSC promotion by AA could have a good spin off into the area and Ethiopia.
- ISSC should be set up on a commercial bases combining a micro financing program.

Tigray Women’s Organisation (will follow after report Ashenafi and Demissie)

5. HoA-ReC/N cooperation with Solar Cooking Netherlands

Solar Cooking Netherlands was founded in 2004. From then on SCN supported in know-how and subsidized in Eastern Africa a women’s organization NUEW, in Eritrea, Solar Connect Association in Uganda, PISDA in Ethiopia and Kaloo in Puntland/ Somalialand. On base of these five years experience ISSC activities SCN developed expertise: production, teaching and training activities, public promotion and marketing in the targeted countries. In the Netherlands SCN developed a three-yearly ISSC introduction course in Kortenhoeft. SCN participates in Solar Cooking workshops; is active in publications on national and international level and has an up to date website. SCN developed a number of ISSC documents ready starting up production, training and marketing. Also some ISSC manuals are in process ready for try outs and translation in local languages; promotion flyers and brochures.

6. List of standards and guidelines for ISSC program development as prepared by SCN

These standards and guidelines reflect expertise and know how gained in African ISSC projects and in a worldwide exchange of solar cooking practises. It is the foundation for ISSC program development. Translation in local languages in an early phase of the project is essential.

1. Manual: How to use ISSC appliances (step by step instruction for trainers and NGO/staff)
2. Manual: How to manufacture solar CookKit and WAPI (water pasteurisation indicator) (for manufacturers)
3. Flyer: Integrated Solar Cooking and Water pasteurisation (for public promotion)
4. SCN promotion brochure: Using the power of the sun for cooking.. A benefit for Africa.
5. Format with detailed data for 3 years HoA-ReC/N ISSC project development in Djibouti/ Puntland / Somalialand
6. Detailed check list: Setting up a Production and training centre
7. Activity schedule ISSC production & promotion Centre – general concept
8. Proposal: Budget Production & promotion Centre – PISDA Debre Zeit:
 - a) Direct production costs
 - b) Income from sales ISSC appliances
9. Concept: ISSC/WP Budget format 2010 – 2012: Purchase and distribution / follow up / training / Credit facilities for end users / capacity building / office expenditures / salaries / monitoring-evaluation
10. Report: Key data on ISSC carbon credits: Estimation of GHG emissions reductions as a result of ISSC use for daily cooking.
11. Outline: how to organize Solar cooking workshops for end users
12. Outline: how to organize Water pasteurization workshops for end users
13. Guidelines for Solar Cooking Classes (6 subjects)
14. Concept Monitoring and evaluation formats
15. ISSC schema with data on unit costs/ reduction of firewood / air pollution / CO2 credits, durability
16. Sources on many types of low and high temperature solar cookers
17. Sources on other ISSC initiatives in African countries
18. An extended solar cooking website with many ISSC relevant links, an archive, videos and photo galleries.
19. ISSC videos, dvd's; dvd with ISSC photo series

7. ISSC networking in Eastern - / the Horn of Africa

In the Netherlands SCN works closely together with Foundation Kozon (Koken met de Zon –Cooking with the Sun) many requests to introduce ISSC in African countries. SCN always connects such requests to former solar cooking initiatives in that country. SCN gives advises on how to start up an ISSC centre and gives 3 yearly courses in the Netherlands (Kortenhoef).

ISSC expertise is broadly available in Kenya, SCIEA (Nairobi, Margaret Owino) and in Uganda SCA (Mbarara, Kampala, North Uganda, mr Kawesa Mukasa). It already turned out that requests from Rwanda, Burundi and Congo could be connected to SCA expertise for production and introduction. Other initiatives (apart from Western Africa) are developing in Zambia and Mozambique. Exchange of technical solar cooking expertise already exists via websites and email communication. HoA-ReC/N could start a half yearly Integrated Sustainable Solar Cooking Newsletter. ISSC updates could be part of HoA-ReC/N website and vice versa.

SCN is impressed by the initiatives of HoA-ReC/N and Ms Janny Poley of the Royal Dutch Embassy to ISSC up scaling in the Horn of Africa as part of the HoA-ReC/N EPP energy program. SCN is ready to support HoA-ReC/N as advisors/ consultants with ISSC know how and expertise.

Clara Thomas

Attachment

A) Debre Zeit Production and training Centre

1590 ISSC households since 2007 in PISDA project, perspective 2010

The PISDA solar cooking introduction was focussed on the solar Cookit. On base of experiences in Western African countries (Kozon) and East African countries (SCN) it was concluded that Integrated Solar Cooking should be culturally better implemented. The already on large scale introduced Mirt Medja, next to the fss Rocket stove in combination with Solar COokit (sometimes Solar Box) and Insulated hay basket became the focus of ISSC. Main objective is on 'how can women save money by using as little firewood (or sometimes cow dung) as possible'. Investigations and calculations done by SCN, PISDA and Solar Connect Association Uganda, learned us that women buying the full ISSC package for the real cost price (including overhead), after 6 months households start saving money on reduction of firewood (see also Manual: How to use ISSC, HoA-REC/N SCN, 2009). In stead of 19.000 birr for firewood, a household of 6 persons, needs 11.000, means a saving of 8.000 birr per year. Permanent discussion point is the price of the ISSC cookers. SCN great concern is that with the subsidy of 70% on ISSC cookers in 2009, does not contribute to the objective 'sustainability'. Regularly it happens that other European or American foundations decide to donate solar cookers (solar box cookers or parabolic cookers) to end users, which has a very negative impact on the market and is in contradiction with sustainability. So SCN strongly recommends a more business like approach with a well managed micro credit program. End users should pay the full cost price, in instalments etc.

Production capacity and quality development

PISDA's production has settled in a very good way and serves as an example. Nevertheless quality control and improvement should be a continuing organized attention point; also the durability and design can be improved (*Manual: How to manufacture Cookit and WAPI, HoAREC/N – SCN, 2009*). The manufacture of a perfect and durable quality Cookit requires qualified technical and handicraft skills. Women often seem to be good Cookit manufacturers.

To manufacture the insulation for hay baskets makes it for women attractive to start small enterprise in their villages; a micro credit programs could be developed to realize this.

Fss Rocket stoves could become cheaper using the design of Voc. Technical Training School Bourayou. Women in villages can be trained to build the rocket stove using moulds and local clay / mud. So women can make their business on this.

The Water pasteurization Indicator can easily produced by women and sold as part of the Cookitset (*Manual: How to manufacture.....*)

Altogether PISDA should take the challenge to enlarging the ISSC market by public promotion and thus increasing the production on ISSC, making more money and becoming able to invest money for new raw materials, all in the perspective becoming more sustainable and less dependant from SCN a.o. funds. In short develop small enterprise. Overall management has the depute manager together with storekeeper and purchaser.

Training capacity and public promotion

PISDA developed an interesting structure for ISSC training and public promotion / marketing.

The trainers selected 3 years ago have become Senior trainers; in new targeted kebeles and villages junior trainers are selected. And each group of 25 end users has a group representative. Junior trainers are trained by senior trainers and give monthly cooking instructions; they also have a responsibility in marketing on local level. Group representatives are their assistants. Senior trainers are responsible for follow up, quality control, marketing and public promotion on area level and train groups from other parts of Ethiopia and the Horn of Africa and are staff members.

Attachment

B) Vocational Technical Training Centre Bourayou, Addis Ababa

November 5 a meeting on ISSC in VTTC took place. Present: Mr Mulugeta (director) and mr Solomon (fss expert for many years) of VTTC, mr Abiy Ashenafi, mr Yissehak of HoA-ReC/N, mr Bereket Dessie of Bereket Solar and Clara Thomas, SCN – HoA-ReC/N consultant.

Representatives of VTTC attended ISSC conference March 2009 and expressed their motivation to starting up solar cooking, also based on their long technical experience developing and producing fuel saving stoves and recently solar cookits and solar boxes and other activities like sewing.....

The **purpose** of the visit is to establish how we can start the production of Cookits as soon as possible at the centre.

Facilities: We have visited the Fuel Saving stove mould and design unit. Then we looked at the different FSS, two pot stove, mirt mold, stove for sawdust burner, the pottery unit, Solar cookits etc . (*Ps Bourayaou was one of the pioneers in the production of FSS in Ethiopia. They claim that GTZ has taken the mirt and stoves from them and expanded/commercialized it*).

They will made rooms available to place the necessary equipments and they would provide store for the materials of Cookits and insulated hay baskets)

Conclusions and appointments:

- Ato Bereket will go to Bourayou November 11) and assesses the facility thoroughly.
- Ato Bereket will discuss the findings with Abiy and they we will set up an appointment with Ato Mulugeta and Solomon after two weeks. Issues regarding financial and contractual arrangement between HoA-REC and Bourayou VTTC will then be discussed. We intend to start production half December 2009.
- Ato Solomon and Mulugeta will go to Debre zeit just before the start of the production. Ato bereket will also be around the production site for four or five days, until the quality of the products are guaranteed.

Use of Cookits, Bourayou VTTC will get in touch with Debre Zeit on how to initiate the use. Abebech Gobena and the team in and around Addis will be initiated

(Minutes of meeting: visit Bourayou, nov 5, 2009, Abiy Ashenafi)

Attachment

C) Awura Amba Community, Northern Highland

Visit took place to Awura Amba, 600 km north of Addis Ababa, the community of Awura Amba has been settled originally in the sixties and after a long history since 2005 settled in this area.

The whole area consists of 175?? Square hectare with 119 families living spread over this area and a population of in total 412 people and beside many donkeys and 6 cows.

The grounder is:

Objectives of Awura Amba:

1. Gender equality
2. Central place for the rights of children
3. Care for the weak and esp elderly
4. Care for each other and for nature

Focus of the community:

- ❖ Cooperation between all members of the community;
- ❖ No quarrels, try to avoid and otherwise discuss;
- ❖ Prevent to say bad things; prevent to do bad things

Thirteen committees

The whole community is organized and functioning by the coordination of 13 committees.

- Development / weekly schedule / sanitary cie / security / complaints / work-labour / elderly / income- money / health care / education / reception / problem finding-solving / rule and regulation / delivery system.

Their lifestyle:

Originally they are farmers, but the ground they possess is not good enough for agricultural purposes. SO the started to manufacturing their own products like making cloth: buying thread, weaving, sewing, sales in the open market.

They build all spaces from local mud mixed with straw with a qualitatively very good result.

All places and spaces are extremely well organized, build with care and dedication,

The houses are all more or less similar following a model, where the kitchen has a fss build for baking injerra, next to the possibility to cooking other pots on the fire, and with a good chimney preventing any smoke.

Since June '09 one group is cooking everyday in solar cookits, especially for the increasing amount of visitor groups.

Meetings: weekly family / ½ yearly group meetings chaired by women, men as well as children: plans are developed and discussed.

Economic aspects: products are sold within their own community but also and esp in the open market, with the intention to break open the national and international market.

Integrated Solar Cooking: Abiy discusses with the reception cie the opportunities for ISSC production with the focus on solar cookers (CooKit and Solar box) and insulated hay basket.

Building a new space will be costly, but the only option considering there is no empty space.

For this option it is strongly recommended to investigate the ISSC market.

Market:

- Awura Amba community could start with ISSC (the build fss is build in all the houses- meaning 119 households x 2 CooKits and 1 or 2 ins haybaskets.
- Sales to visitors, esp interesting for Ethiopian visitors
- Open market in the area: markets, villages and towns.