## 6th Solar Cookers International World Conference 2017

## "Public Policy to Support National and Local Movement of Solar Cookers"

M.Sc. Eng. Pedro Serrano-Rodríguez

### Architecture Department

### Technical University Federico Santa María Carrera, Chile, S.A.

## Fellow Ashoka from 1996

## President TERRAM Foundation for sustainable development

http://www.arq.utfsm.cl/unidad-arq-x/

#### Abstract

Since 1976, author works in design and dissemination of solar cookers in Latin America, mainly in Chile. With rural communities, non-governmental development organizations, foundations and universities.

40 years experience on public policy support for solar cookers, in participatory design, educational transfer, search for materials and adaptations to local situations, self-construction, with successes and failures, allow sharing some ideas:

• A kitchen, donated, designed by third parties outside the local circumstances, ("approximation ET"), requires a very careful and lengthy process of education and socio-cultural transfer, flexible technologies and, above all, patient and financed accompanying post transfer.

• A functional model solar cooker, is not applicable for any place and any culture.

• To support the launch innovative solar entrepreneurs, such as restaurants, dryers, pasteurizer, communal meals, sits locally and successful technology programs, encourages stakeholders, local and national authorities.

• The local cultural gender roles, is always an issue to consider. There are good experience in the process of women liberation and integration of man, with the local domain of solar cooker technology.

• Each continent, country, region and locality, cooks different food, portions, and different cooking styles, also have different ergonomic uses. The design of solar cookers for local programs must accommodate these differences.

• In Latin America the main focus of public policies to promote solar cookers has been around the efficient use of firewood, state incentive to non-conventional renewable energy, innovation and productive solar enterprise.

The presentation contains examples of successes and failures, designs, transfer methodologies, support and impact in determining public policies slated to support a regional movement of solar cookers.

Keywords: public policies, solar cookers, gender, transference

# I. - Presentation

Author works in Solar Cookers design and dissemination in Latin America, mainly in Chile. With Rural Communities, non-governmental Development Organizations, foundations and universities. The aim of this presentation is to contribute to the generation of public policies that support the dissemination of solar cookers.

Often in a joint work, based on government projects, it requires the subjects who solicits and manages resources, are the local organization. Technical consultant, either individual or NGO, appears as an associate consultant in the project or hired by the organization. This is an example of a public policy, that emerges to solve management problems the "assistentialist" experiences from the last century.

The organization of people must also have a legal status, allowing it to act as an entity recognized by the state. solar cookers have historically supported the organizing people processes. To day in Chile first is organization after the cookers.

The above described conditions for such projects in Chile, are the result of constant work since the 70s, in terms of achieving public policies that encourage neighborhood organizations, groups of workers, indigenous, seniors groups etc. ...

To apply for a public project in Chile today, people there must be previously established like legal organization.

#### II The experience

Author has 40 years experience on public policy support for solar cookers, firewood conservation, in participatory design, educational transfer, search for materials and adaptations to local situations, self-construction, with successes and failures, allow sharing some ideas:

• A kitchen, donated, designed by third parties outside the local circumstances, ("approximation ET"), requires a very careful and lengthy process of education and socio-cultural transfer, flexible technologies and, above all, patient and financed accompanying post transfer.

In general, gifts or free delivery of relatively sophisticated equipment, from external source, often end in failure. This proceeding, typical in the last century last decades, in the classical direction from north to south, paternalistic attitude that has been in the context: "I bring here the solution to your problems of underdevelopment", it has proved disastrous for the processes of autonomous development and has also buried interesting technological approaches.

Technological approach without socio-cultural approach does not reach good results

Many solar cookers, for example parabolic built in Europe and U.S.A. with specular sheet metal, cardboard or adhesive material refracting mirror. All this materials that are not in the country of use, generate impossibilities to reproduce or repair at the local level. Which are fundamental conditions of socially appropriate technology. That is, they will never be appropriated locally, if access to important materials, is locally impossible.

This is a mistake in development processes, that attempt to promote progress in developing countries. This style generates technological and supply dependence. Which is contrary to nations wishes about free and independent development .

The solution to the above, is to develop participatory, locally viable appropriate and "*appropiable*" solutions, that enable to the local community: create, improve, maintain and reproduce local characterized technology, in this case: the solar cookers and solar ovens.



Fig 1 Local Design and construction

Fig 2 Self assembling

• A functional model solar cooker, is not applicable for any place and any culture.

The technological approach "ET style" (the extra-terrestrial), can find friendly and smiling communities for the gifts offered, but this does not guarantee at all that, when the flying saucer with their respective aliens, has departed, the community really use properly given objects. This is an extreme " caricatured", but realistic example.

Each country, each region and each culture, has its own ways of food cooking. Some cook only one main dish for many people, other for families or for an individual. These are example of three different cultural approaches.

There are also cultures that cook a variety of different products small portions. There are cultures where the dominant mode uses hot oil (frying), others where cooking on water is usual, and others where the main food is roasted to direct fire. These are needs and different cultural approaches, which are reflected in the different types of containers used: large pots, small pots, pans, grills. The question is whether, some type of solar cooker, can adapt to these various uses. Including, by example, solar cookers like pasteurizer

One pot and multiport solar cookers:



fig3 Aliexpress S-China fig4Deniel Casstillejo

fig5 Fuprosomic Nicaragua

There are communities cooking on the ground and other cooking standing. This makes the models should be ergonomically different...

The answer to all this is: that the model of solar cooker should be technologically and culturally appropriate, i.e. respond to "what the community needs", overcoming the need to impose a model or nice solar cooker prototype.

Culturally appropriate, also it means that work (Cook) appropriately in that culture. Without forgetting that cultural practices are closely related to the weather. Implying usage times, climate seasons, and real sunshine availability, available alternatives local energy.

• To support the launch innovative solar entrepreneurs, such as solar restaurants, solar dryers, solar pasteurizer, communal meals, sits locally and successful technology programs, encourages stakeholders, local and national authorities.

Small-scale entrepreneurship is an activity that today takes great momentum in our countries, because employs local labor or self-employed entrepreneurs themselves, improving the local economy numbers.



Fig 6, 7 Solar restaurant Villaseca, Chile, a gender venture

So, if solar cookers technology is used beyond their domestic applications, in enterprises with greater local impact, such as solar restaurants, mini solar drying companies, pasteurizers food, school canteens, etc. This causes the local and national authorities put their eyes on these facts, encouraging the development of public, local and central policies to support solar cookers. • The local cultural gender roles, is always an issue to consider. There are good experiences in the women liberation process and man integration, with the local domain of solar cooker technology.

In many parts of the world, solar cookers are in the field of women, therefore the technological domain, which delivers a well-made, participatory and educational transfer, can feed a women's liberation processes, which usually interesting results. Latin America has a known "*macho*" tradition, keeps certain degree of women subjugation in home areas, work and community. The mastery over technology delivers a socio cultural "Up grade" in women society positions.

Our surveys indicate that: women who really dominate solar technology (which does not happen with given external kitchens) improve self-esteem and mastery over autonomous decisions, which previously was controlled by men. This improves gender equality conditions. In Chile to day exist a Ministry of Women, and in that are involved developing public policies, that may involve solar cookers.

#### **II.-** Conclusions

• Each continent, country, region and locality, cooks different food, portions, and different cooking styles, also have different ergonomic uses. The design of solar cookers for local programs must accommodate these differences.

For experienced cooking equipment designer it is essential to have a cultural understanding about what is being cooked, from artifacts and utensils to cook modes, is very different to cook on water, to cook on oil or in the air.

There are also anthropometric assumptions, cultural rituals, types and sizes of food. They require, each in their differences, work professional design culturally and appropriate. This involves a little recognized truth in solar cookers outreach programs: A technological functional model cannot meet, with success, the cultural demands. Cultural demands are also local.

• In Latin America the main focus of public policies to promote solar cookers has been around the efficient use of firewood, state incentive to non-conventional renewable energy, innovation and productive solar enterprise.

In Chile, for example, corresponds to firewood 20% of the total country's energy, is used for cooking an important part of that firewood.

Thousands of children and women around the world work without pay to collect firewood for cooking.

Firewood collection without culturally control, conservation green areas, avoid diseases own breathing smoke from the stove, stop child labor, in developing countries are the main reason for energy policies in this area. This reasons set boosts energy public policies, to regulate forest management, the family's health and improving the family's quality of life. Its necessary to understand that solar cookers may or may not be part of these public policies, solar cookers in themselves are not the focus of specific public policies. Solar cooker will be part of the solution of many problems, but they are not the solution by themselves. III Bibliography and references:

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M.Sc. ING. DR.<sup>©</sup> Pedro Serrano Rodríguez

Director Unidad de Arquitectura Extrema / Director of the Extreme Architecture Unit Académico Departamento de Arquitectura / Academic Architecture Department Director Editorial USM / USM Editorial Director Universidad Técnica Federico Santa María Valparaiso, Chile, S.A. Presidente Fundación Terram, por el Desarrollo Sustentable / President Terram Foundation for Sustainable Development. Fellow Ashoka, Innovators for the Public / Ashoka Fellow Phone: 56-32-2654106 Cell : 56-9-74304011 pedro.serrano@usm.cl www.editorial.usm.cl www.arquitecturaextrema.cl www.terram.cl www.ashoka.org