

Possibilities and challenges of "Sun can cook Nepali food"

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Abstract

Nepal is a land-locked country with an abundant source of solar radiation for mitigating various issues of environment, economy and energy for cooking and lighting. Nepal has a good source of solar radiation about six hrs a day for about nine months ranging from 1337 (Kathmandu Valley) meters to 2850 (Lukla) meters above sea level. (Source: DHM/GoN)

Adaptation of solar energy technologies can bring a big change in social life if it is harvested properly in day-to-day cooking in sunny areas. Despite its huge source of solar energy, Nepal has not been able to promote solar cooking in a user-friendly and cost-effective way.

Government programs on solar cooking promotion in Nepal are negligible compared with other agencies such as INGOs, NGOs and charity organizations working in Nepal in order to relieve hardships of selected pocket areas reducing over-dependence on forest resources. Government policies for promoting solar cooking initiatives are neither affordable nor accessible to the needy communities. Most of the program products are lying idle due to lack of proper knowledge on the products and necessary training to the users for applying devices.

**Key words: Green energy, natural resources, waste management, policy change, entrepreneurship development,**

Introduction

Fuel crisis is becoming a burning issue all over the world, no matter people live in mountains, hills, plain and in caves or in deserts, they need fuel for cooking for the family. Without cooking fuel, no human being can survive in the Earth.

In Nepal, majority of rural community (about 80%) use fire wood, cow dung, and other type of biomass wastes from the farm. Housewives spend three to six hours a day to collect bunch of fire wood (say about 20-25 kg) facing all sorts of risk factors in the forests which lasts hardly four days in traditional (mud) stoves. They have to spend a week in a month for just collecting the fire wood. Commercial fuels (kerosene and L.P. gas) are not only unaffordable but also inaccessible for them for cooking. No alternative

or renewable energy sources for substituting fire wood are introduced in the community for cooking purposes.

Due to un-environment-friendly behaviors, people are facing lot of hardships in managing fuel for cooking. Forest area is less than 25% of the total country's area in 2011 (World Bank). The forest area may be less than 20% because of excessive use of forest resources as fuel and construction materials in earthquake affected districts and at the time of border blockades in the country.

People are still not conscious on the degrading environmental situation in the country. Forest is depleting everywhere causing severe global warming on the earth and desertifying the beautiful nature of this Himalayan country. Forest is the main target area to use its resources (a) in the name of the political parties, (b) in the name of natural disasters such as earthquakes, landslides, flood including relief, rehabilitation and reconstruction programs in affected areas, (c) constructing new highways, (d) setting up the military and police barracks and their training centers, and (e) in the name of shortage of cooking gas. Everybody starts chopping trees as they have planted for their personal use. No controlling measures are in force during above situation.

Nature has given us abundant resources of greeneries and free source of air rain and solar energy to survive comfortably in this Earth. People have not realized or identified these sources to catch them in order to renew and reuse them in several ways for the benefit of the community. It is time now to realize the economic use of these resources in consumable items for survival.

### Burning issues

Nepal is facing natural disasters like landslides and floods during monsoon season every year. In FY 2015/2016, Nepal has faced a series of deadly earthquakes and aftershocks followed up by landslides causing death toll about 10,000 people, collapsing hundreds of thousands of houses including schools in 14 districts, sweeping away agricultural land into barren, damaging all the roads, breaking communication and water supply systems, paralyzing economic activities and degrading local environment in the affected areas heavily. Due to these natural disasters people of these districts were compelled to live in shelter house and tents as refugees.

Immediate after deadly earthquakes, Nepal has experienced a series of blockade in the borders paralyzing whole economy of the country for about seven months. Due to blocking in the borders, people could get neither food nor fuel for cooking. Petroleum products were stopped coming to Nepal. Gas bullets, petrol/diesel/kerosene tankers, consumer goods, raw materials for the industries and medical supplies were halted in the borders paralyzing all types of transportation means including public and private vehicles/motor cycles. Schools and shops were closed, government supply systems for basic needs like, cooking gas/kerosene, transportation were totally failed. People were fasting days and days and buying costly packed food for survival. Black market business in urban and in the border areas were flourishing day-by-day. Borders were opened to the smugglers but not to the public.

In both situations of earthquakes and border blockades, the initiatives of applying alternative and renewable energy sources from the government, donor community, NGOs, INGOs were very negligible for giving relief packages to the affected people. People started using three bricks or stones to cook with sticks, cartoon boxes, papers collected from here and there emitting lot of smoke. There was a heavy load-shedding of the electricity during blockade time. Thousands of trees were chopped from the nearby forests of the earthquake affected areas for cooking and rehabilitation purposes.

### Efforts of solving issues

FoST has played an untiring role of opening the door for briefing, orientation and demonstrations of the solar and sustainable technologies and providing training on solar cooking, briquette making and supplying solar cookers, briquettes and fire wood efficient stoves during earthquake and blockade situations. FoST has organized and participated in a series of green energy exhibitions in public places. Efforts were so timely that FoST activities were followed up by the journalist/reporters highlighting in TV, FM radio, weekly bulletin and electronic newsletters to motivate people on behavioral change towards cooking in solar and applying other alternative technologies in order to survive sustainably during blockades.

FoST received lot of enquiries on solar and sustainable technologies, about 150 people got training on fuel briquette making from the green and paper wastes, about 50 people got orientation on solar cooking and solar cooker building from the reflected materials available locally. FoST sold about 50 solar cookers, 200 stoves of different models and about 5 tons of fuel briquettes during blockade situation.

FoST was treated a leading organization in gathering people in the exhibitions, schools, colleges, communities, blind and disabled groups. Continuous flow of visitors from charity organizations such as Rotary groups, NGOs, INGOs, orphanages, intellectually disabled community encouraged FoST family to sharpen their activities in a polished form with limited resources. FoST is recognized by the people as “change maker” and “relief agent” during fuel crisis in Kathmandu Valley.

### Timely support

In line with supporting FoST activities, Solar Cookers International is being leading donor for series of grant programs for promoting solar cooking activities in Nepal. With the grant programs, FoST communities especially women groups were much benefited through solar and sustainable. When working closely with the women community in the target areas, solar cookers’ demands are increasing day-by-day. It is a matter of pride to FoST that people have at least realized the importance of using solar cooker in daily life. But people are still not ready to buy solar cookers as other cooking appliances. Actual, they are ready to get cookers under the grant programs or under the subsidized programs. FoST is trying its best to motivate the people to bridge this gap and treat the solar cookers as their other appliances.

### Possibility of promoting solar cooking in Nepal

Due to time constraints of the people in Nepal, no matter they live in any geographical regions, they use mostly LP gas and electrical appliances as far as accessible and affordable. Traditional type of cooking behaviors with cow dung, fire wood and fodders are slowly phasing out in the rural areas too. Every household likes to cook fast with less smoke and does not care about the cost factors. People have less thinking of the environment, free source of energy and cost saving when cooking. In this situation, we feel less possibilities of promoting solar cookers and more challenging if we do not consider the following:

- a) Create an awareness program on solar cooking with brochures and leaflets with attractive photos as examples.
- b) Introduce action-oriented programs in the target community to convince people that solar cooker is a basic need item such as gas/kerosene cooker, induction heater etc. for using several times a day with free source of solar energy.
- c) Demonstrate low cost (or with subsidy) highly efficient solar cookers compatible to local cooking practices.
- d) Introduce solar cooker building sessions in schools with practical show to educate students and teachers.
- e) Organize practical show of cooking without gas, kerosene, electricity and fire wood.
- f) Demonstrate how to cook food if there is no sun by using other fuels.
- g) Demonstrate how to retain the heat while cooking.
- h) Show the alternative options of cooking in slack situations such as in rainy season, cloudy time, winter, early morning, evening etc.
- i) Organize solar cooking competitions in the schools and in the community and set up the prizes for the best performers.

#### Challenges of accepting solar cooking

In Nepal, there are two main meals in Nepali society – morning meal and evening meal containing rice, lentil and curry. In the morning, people take tea and in the afternoon tea and snacks. Food habits are depended on the available timing of the family members, their businesses, school-going children, farming and other economic activities. Cooking food is treated as private kitchen work in Nepali society. Generally, people do not cook in open space or in terraces. During the emergency time people forget traditional practices because it was almost impossible to follow the practices during earthquakes and border blockades. People seek all sorts of cooking options so that they can cook food for the family, any how they want to survive, no matter if they need to cook with three bricks with smoky fuel in the road, lane or in terraces. But, when the emergency is over, they start forgetting those days of hardships and the lessons learned during emergency situation. This is the human nature.

When talking about the challenges what the solar cooking promotional agencies face the challenges of convincing the community as follows:

Cultural barriers: As explained above, people are still hesitating to cook openly. Since Nepali food contains three items in two times' meals, people think difficult to cook in solar cooker all the items. Frankly speaking, it was difficult to cook and have less

patience to wait until all the items are not cooked. Another main barrier is cooking time, if cooking starts at 10:00 a.m. that is not useful to the family because morning meal is taken by 09:00 a.m. If the solar cooker can be used immediate after sunrise until sunset, i.e. 07:00 a.m. 5:00 p.m. that type of solar cooker can be accepted to some extent.

**Efficiency:** As mentioned above, people do not want to spend too much time in cooking. They want everything quick and don't like to apply any kitchen appliances which are in slow motions. Efficiency of the kitchen appliances gives high value in present society.

**Accessibility:** People in most parts of the country are still unknown of cooking in sun. They know how to dry food items and clothing in sun. But they are not aware of the cooking in sun. They are still not accessible with the grant or subsidy programs implemented by the INGOs and NGOs and by the government. So the needy community is still far from the program benefits launched by the donors.

**Costing:** Nobody wants to buy solar cooker by paying full price from the companies or institutions in Nepal because of the high price. That's why people try to get solar cookers in a subsidized rate. Even the subsidized solar cookers are also not affordable to the community because of their income source and priority.

These are the challenges of solar cooking promotion in Nepal. People do not care about the environment, health and cooking time when cooking. Solar cooking promoters must accept all these challenges heartily by advocating real benefits of solar cooking in terms of protecting the health, maintaining the environmental degradation, saving fuel cost, saving time, income generating etc.

FoST aims to see Nepal such a unique place where people have knowledge how to fight with the global issues like impacts of climate change and natural calamities with simple, easy and cheap methods of alternative and renewable energy sources by cooking in solar, making alternative fuel from their own wastes, reducing greenhouse gas emissions, minimizing indoor and outdoor environmental pollution, protecting forests, reducing garbage volume, minimizing water and smoke-born diseases, and creating employment opportunities in urban and rural areas for tangible results. Let's join hands to work together for effective solutions of the burning issues in this planet.

#### Conclusions:

As discussed above on the possibilities and challenges of the solar cooking in Nepal, we would like to conclude this paper with the following tips to follow in promotional programs to show "Sun can cook Nepali food".

- a) Launch an effective extension program on awareness creation on solar cooking in needy communities
- b) Organize skill training workshops periodically on solar cooking, water pasteurizing and solar cooker building
- c) Exhibit varieties of solar cookers time to time in public places,

- d) Implement integrated programs on solar and sustainable technologies for bridging the gap of cooking in early morning, evening or in cloudy, foggy and rainy days.
- e) Encourage solar cooking interested group to create solar cooking business by (i) applying solar cookers in the restaurants for serving solar cooked food, (ii) opening solar cookers' show room, (iii) arranging solar cooking classes in the schools/colleges, and (iv) organizing series of briefing and orientation sessions in the communities on advantages of solar cooking in daily life.

The whole concept what we presented in this paper is to convince the people that Nepali food can be cooked in solar cooker of the efficient model immediate after sunrise, no matter it comes at 6:00 or 7:00 a.m. in summer or 7:00 or 8:00 in winter. We can cook food in solar cooker depending on solar radiation (hardness) and the efficiency of the cooker. We cannot fix the time of cooking at 9:00 or 10:00 a.m. or 1:00 or 2:00 p.m. as reflected in an article “How to build your own cheap, simple solar oven?” in Wakeup-world.com.

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