4th Webinar CONSOLFOOD Spreading the solar cooking “virus”

Programme (New Delhi time)

14:45 Online access to platform of video conference

15:00 Opening session, Ajay Chandak, India

15:05 Practical use of solar cooker and my experiences with solar cooking; Hemant Deshpande, India

15:45 Questions and answers session

16:05 Closing session, Celestino Ruivo, Portugal

30th May 2020
4th Webinar CONSOLFOOD  www.consolfood.org
Solar Food: For HEALTH Benefits

Ancient Indian References:
In Rig Vedas, Muni Shardul describes Solar Food which promotes longevity & improves cellular health. It strengthens health and mind, removes three major physical disorders. Sun cooked delicacy is ultimate medicine.
Solar Food: For HEALTH Benefits

Ancient Indian References:

Food cooked by Sun enhances Color, aroma, and taste. It is ultimate medicine (Amrita) for vigor and aura.

'Yagyavalk Smriti'
Foods cooked on high temperature flames like cooking gas, microwave etc. releases AGE’s (Advanced Glycation End products). These AGE’s are associated with Heart disease, Diabetes and Cancer. Solar cooked food (Cooked at temperature less than $250^0$ C) does not release AGE’s.
Solar Food: **For HEALTH Benefits**

**Modern Science References:**

Solar Cooked food preserves most of the vitamins, minerals and antioxidants. Antioxidants protects from Cancer.
Solar Food: Environmental and HEALTH Benefits

Burning any fuel like cooking gas, kerosene, wood etc. releases gases like carbon dioxide, carbon monoxide and nitrous oxide. Inhaling these gases for long duration is a cause of major diseases. Solar Cooking does not cause any such threats.
Prof. Hemant L. Deshpande

• Hardcore promoter of renewable energy. Has been using solar cookers, solar water heater and rooftop solar power at home.

• Actively involved in projects fair for engineering and polytechnic students: “DIPEX”, for last 15 years.

• Asst. Prof. In mechanical engineering at Government Polytechnic Miraj. 32 years of teaching experience.

• Has initiated many projects in renewable energy through students.
PRACTICAL USE OF SOLAR COOKER
AND
MY EXPERIENCES WITH SOLAR COOKING

Hemant Laxman Deshpande
Miraj (Maharashtra, India)
hldeshpande@live.in
+919403006580
OUTLINE OF PRESENTATION

- WHY SOLAR FOOD?
- SOLAR COOKING UNLIMITED
- MY EXPERIENCES
- CONCLUSION
HOW INDIANS COOK

Percentage of households with different types of fuel (%)

- LPG
- Firewood, chips and crop residue
- Dung cake
- Others
- No cooking arrangement (do not cook)

Rural:
- LPG: 48.3%
- Firewood: 44.5%
- Dung cake: 5.5%
- Others: 1.1%
- No cooking: 0.6%

Urban:
- LPG: 86.6%
- Firewood: 4.1%
- Dung cake: 3.2%
- Others: 4.1%
- No cooking: 1.8%

Total:
- LPG: 61.4%
- Firewood: 31.2%
- Dung cake: 5.6%
- Others: 1.8%
- No cooking: 3.8%

Note: The survey was conducted between July and December 2018.
Source: National Statistical Office's 76th round survey on drinking water, sanitation, hygiene and housing condition in India.
Smoke that kills
Global exposure to household air pollution

All over the world, people cook over open fires, and burn solid fossil fuels while doing so. Being exposed to household air pollution (HAP), which is the result of incomplete combustion of these fuels, negatively impacts health.

Population using solid fuels (%)
- <5
- 5-25
- 26-50
- 51-75
- 76-95
- >95
- Not applicable/No data

4
HAP is the fourth biggest health risk in the developing world

4.3 million
People per year die worldwide from exposure to cookstove smoke*

7.7
Percent of global mortality due to household air pollution

500,000
Deaths per year due to ambient air pollution caused by traditional cooking

* According to the World Health Organization [accessed April 2017]

Sources:
http://gamapserver.who.int/gho/interactive_charts/aph/air_exposure/nitas.html
http://cleancookstoves.org

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नूनं जना: सूर्यन प्रसुता
Solar Cooking

- Solar cooking not only preserves forests by saving firewood but also reduces air pollution.
- Adoption of solar cooking technology will not only increase energy security but also generate many employment opportunities.
- It will open new gate way in areas of skill development.
- One estimate suggests that even if five percent India’s population opts for solar cooking then worth more than Rs. 25000 million per year can be saved.
- Reduction in monthly expenditure
- Reduced pollution
- Reduction in carbon emission
- Contribution towards nation building
- Proud citizen of the society
दीर्घमायुर्बलं वीर्य व्याधि शोक विनाशनम्
सूर्य पादोदकं तीर्थ जठरे धारयाम्यहम्

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If we energize our drinking water with the sunrays, it provides us with more *prana* and can impart additional healing energy to the herbs that we take with it.

The Sun itself grants the power of longevity or *Ayus*.

(Ref: David Frawley, American Institute of Vedic Studies)  
https://www.vedanet.com/the-ancient-yoga-of-the-sun/
Sun and Health

There is a reference of 22 diseases in the 9th chapter of “Atharva Veda” which can be cured by the rays of the rising Sun.

The list includes headache, anemia, diseases of stomach, tuberculosis and many more….
Solar Cookers...Few Designs

Box type Solar Cooker

Parabolic Solar Cooker
Let’s have a tea and start....
Solar Cookers ..

PRINCE 15
Wall Mounted Solar Cooker
A different look parabolic cooker
The Cooking methods are many but not limited to:

- Steaming
- Roasting
- Cooking
- Baking
- Frying
Use of Pressure Cooker
Some Steaming/ Cooking

Pulav / Varieties of Rice
Spherical Thick Brass Pot for DAL
Courtesy: Dr. Ajay
Idli Cooker

Perforated Plates
Idli
Perforated Plate
DHOKALA
Khandvi
Gujarathi Cuisine

Coriander cubes
Indian aapppe
Roasting

GROUND NUT

BRINJAL

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Utensils used for breakfast
Poha

Upama
Thalieeth
Roti/Paratha  Dosa  Utappa
Baking..
A Cake in making...

Pictures from My friend Vikas Gulve
Celestino Baking Bread and preparing coffee
Soup making

Preparing Ghee

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Frying..

Bhajee... pakode
Have a dessert....
Gulab Jamun
If it is cloudy...

- We can use **Glass Cover** as advised by Celestino Ruivo

- This cover acts as Green House and traps heat and serves purpose.

- Even when it is not cloudy and you are in a hurry, you can use the glass cover.

- Now a days we get many pots and pans with glass cover.

- Use them extensively because, glass top works as greenhouse... and cooking is faster.
Some Precautions..

- Handles and knobs of plastic should be covered with aluminium foil so that they do not heat up or burn.

- Protect your eyes with sunglasses, use gloves to handle pots and vessels.
Some Precautions...

- For boiling milk, we use stainless steel pot which is not black, but somewhat shiny.
- Shiny side reflects part of the solar radiation; which in turn slows down the cooking and milk does not spill.

- Most important thing is to keep watch on cooking, otherwise, food may get burned!
HURDLES in not being popular

- Though the cost of solar cooker is affordable, Higher level of ignorance and unawareness regarding renewable energy technologies even in educated people is one of the major causes of solar cookers not being so popular.

- Apart from the economics, people must be made aware about the health benefits of solar cooked food.
■ Those who want to buy, do not know from where to buy. Existing manufacturers should strengthen their network.

■ Need for some shelter-like attachment to keep oneself in shade while cooking in solar cooker.

■ Some users feel that, Auto focusing arrangement should be provided.

■ The arrangement is heavy and needs to shed some weight.
The requirement of open space is another hurdle. In urban/metro cities, people living in apartments face this problem.

In some cases, especially in case of ‘working couples’, people complain about sparing time for solar cooking. But, (What I suggest is that) they can use solar cookers on holidays.

Cooking on solar concentrator is really a fun. This will help them enjoy their SUNdays and also relieve them from the stress incurred during working days.
CONCLUSION

- Recent strategy of most of the Governments to promote renewable energy is highly appreciable.
- But still it seems to be centered on wind and solar PV technologies.
- The manufacturers should now shoulder some responsibilities to promote solar cooking.
- Demonstrations of solar cookers can be held in schools, colleges, universities and various other centers to illustrate its benefits.
Manufacturing parabolic solar cooker requires meager capital for which new entrepreneurs afford to take small risks. As almost all market is untapped, risk is negligible.

Manufacturing and sales of these cookers can be linked with the new concept of “skill development”. This will provide more entrepreneurial opportunities.
There’s a will, there’s a way...
THANK YOU

hldeshpande@live.in