

# 4<sup>th</sup> 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



30 th May 2020

4<sup>th</sup> Webinar CONSOLFOOD [www.consolfood.org](http://www.consolfood.org)

# Solar Food : For HEALTH Benefits

अकालमृत्युहरणं, पुष्टितुष्टिप्रदायकं त्रिदोषहरणं, त्रिताणामकं, सर्वव्याधिविनाशनं, ।  
सूर्यपक्वान्नमहाऔषध ऋद्धिसिद्धि प्रदायक ऋणुपूर्व मुनिार्दुलः सूर्यात्मे अन्नशुभं ॥

## 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:

रूप रस गंध समायुक्तं पौरुष कान्तिदायक ।  
सूर्यपक्कान्नमहाऔषधि न किञ्चिदपि संशयः ॥

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

*'Yagyavalk Smriti'*

## Solar Food : For HEALTH Benefits

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<sup>0</sup> 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](mailto:hldeshpande@live.in)

+919403006580



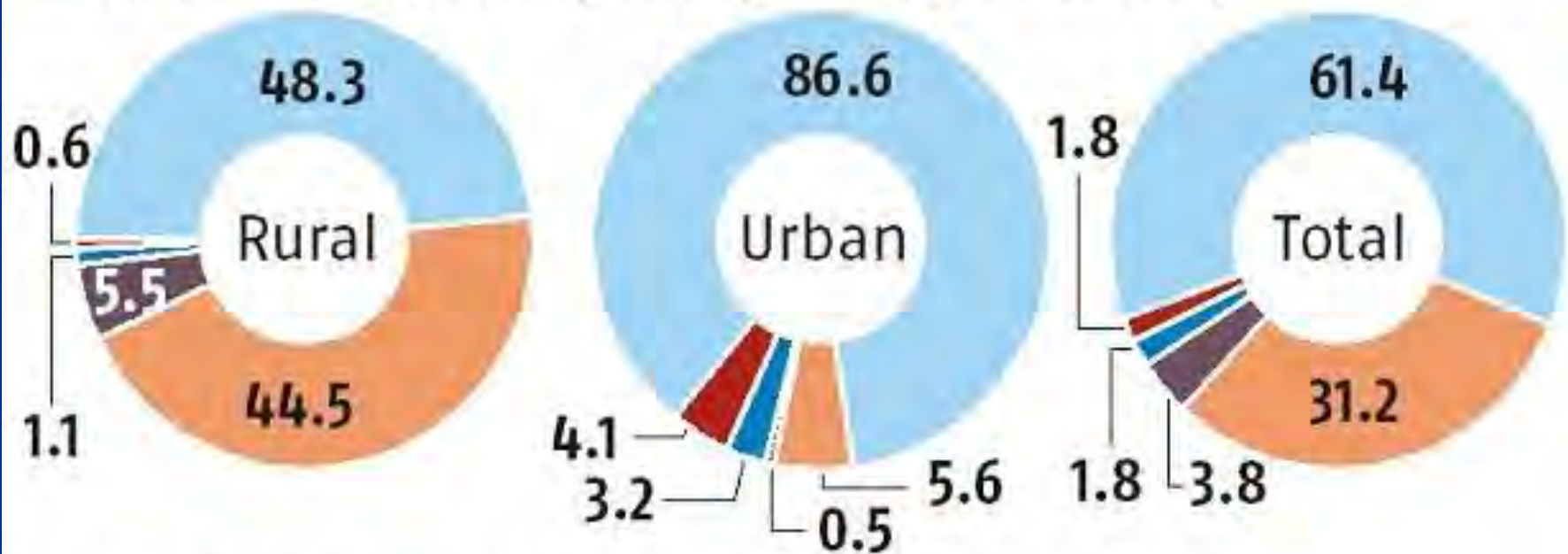
# OUTLINE OF PRESENTATION

- ❖ 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)



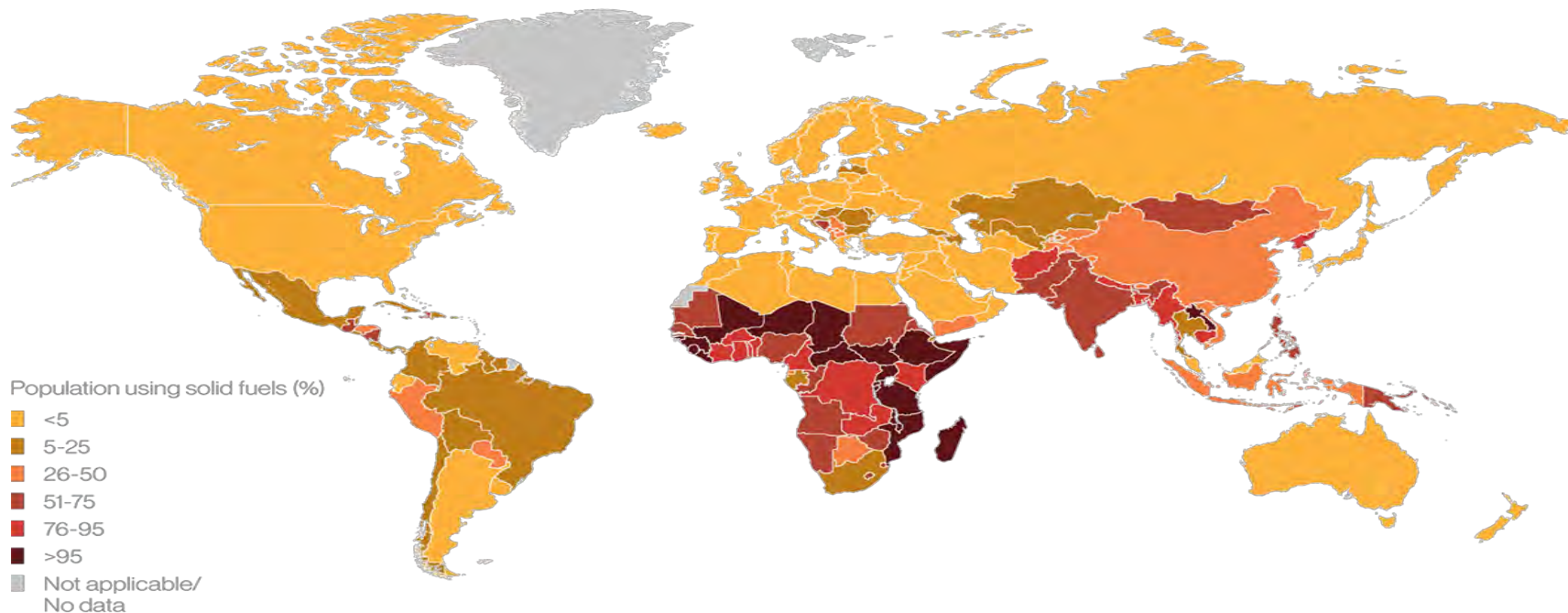
Note: The survey was conducted between July and December 2018

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.



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/phe/iap\\_exposure/atlas.html](http://gamapserver.who.int/gho/interactive_charts/phe/iap_exposure/atlas.html)  
<http://cleancookstoves.org>

नूनं जनाः सूर्येण प्रसूता ।।

# 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 वीर्यं व्याधि शोक विनाशनम्

सूर्य पादोदकं तीर्थ जठरे धारयाम्यहम्

- 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









# I d l i



## Perforated Plate







# DHOKALA







Khandvi  
Gujarathi Cuisine



Coriander cubes



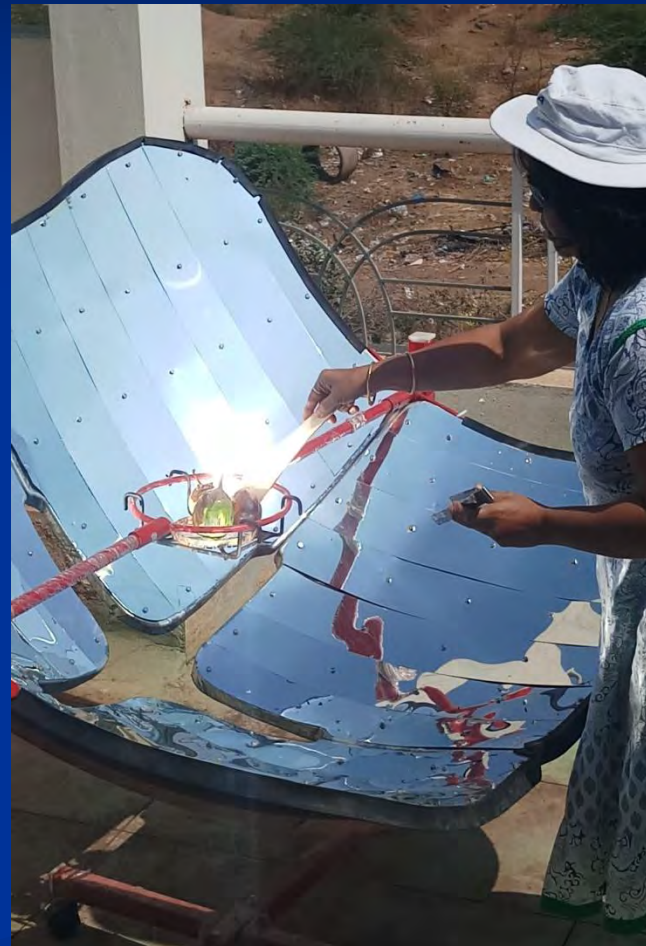
# Indian *aappe*



# Roasting

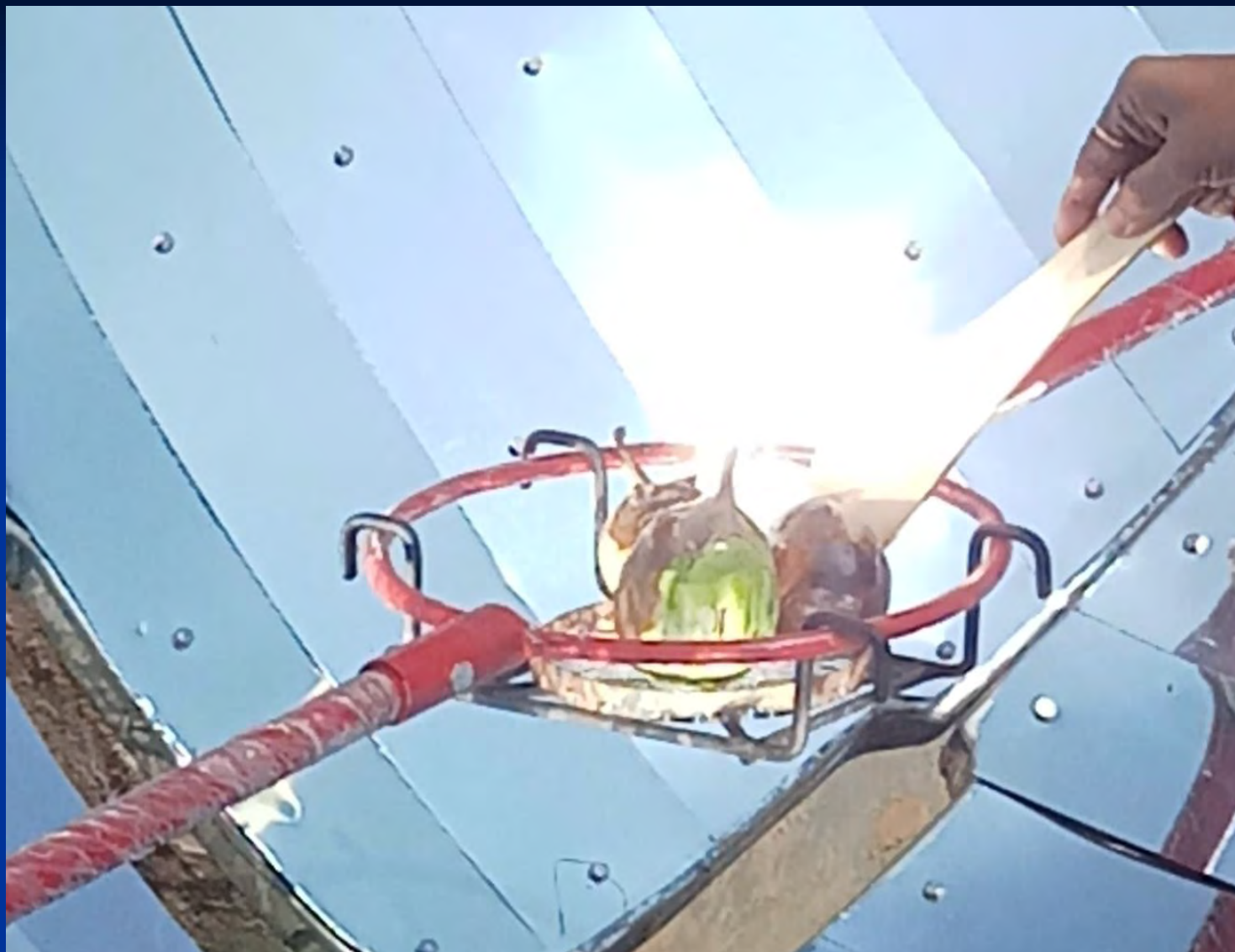


GROUND NUT



BRINJAL





# Utensils used for breakfast





Poha



Upama







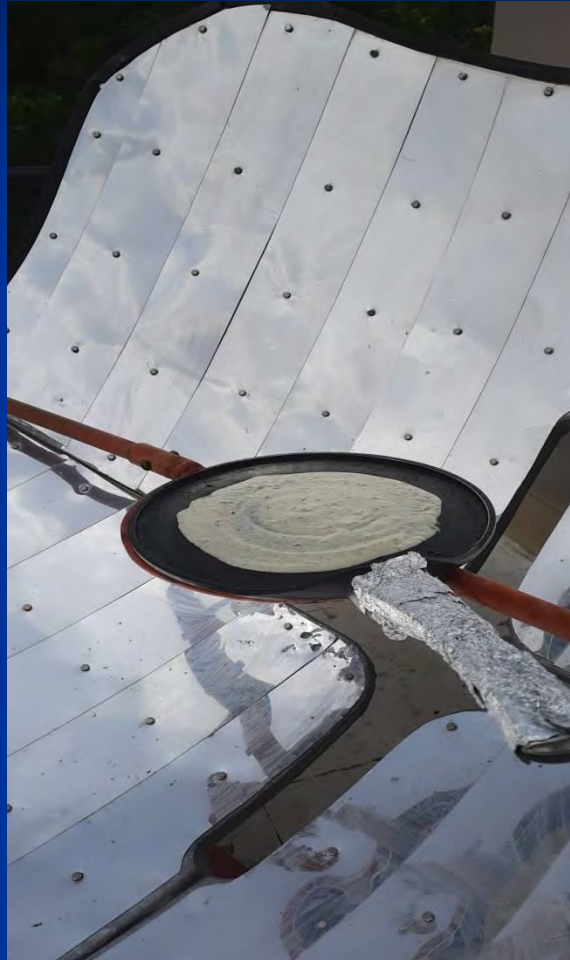
# Thalipeeth



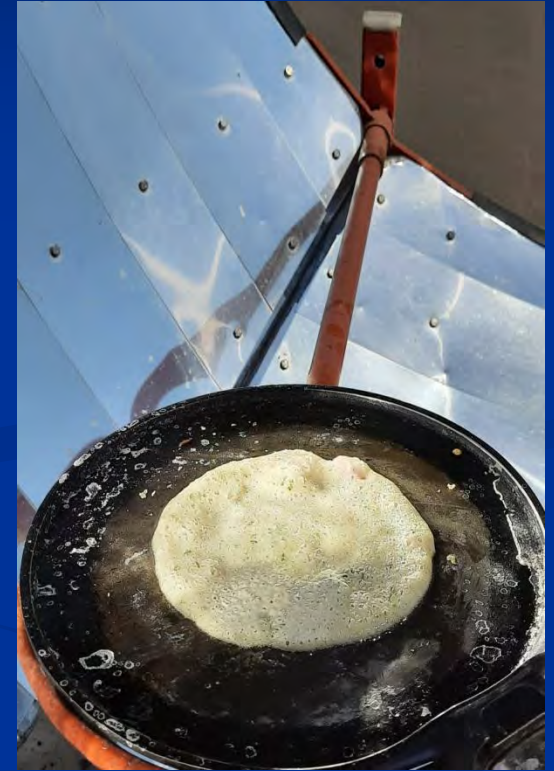
# Roti/Paratha



# Dosa



# Utappa





# Baking..



# A Cake in making...



Pictures from My friend Vikas Gulve



# Celestino Baking Bread and preparing coffee



# Soup making



# Preparing Ghee





# 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...



POCO  
SHOT ON POCO F1



THANK YOU

[hldeshpande@live.in](mailto:hldeshpande@live.in)