



# Improved Devices and Lessons for Dissemination: Experiences from Maharashtra

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[www.samuchit.com](http://www.samuchit.com)

# 1990s



- Involved with Appropriate Rural Technology Institute (ARTI), TBU-NPIC, Maharashtra and Goa
- **Improved Cookstoves were being designed for:**
  - Saving women's drudgery of fuel collection
  - Reducing smoke in the kitchen
  - Saving forests
- **Reality:**
  - Women were mostly using agrowaste and weeds which had to be removed anyway.
  - Traditional rural houses were designed with ventilation to take most of the smoke out of the house. IAP was a problem in semi-urban and urban poor households more than rural.
  - Forest wood going into cook stoves was forestry waste.

# 1990s



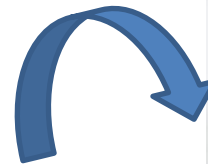
- A personal realisation:
  - A typical rural poor household uses a wide variety of solid biomass fuels over the annual cycle.
  - Designing a ‘chulha’ with no emissions and high efficiency irrespective of fuel type is equivalent to designing a ‘multi-fuel’ car that would run smoothly irrespective of fuel type – has not been done!
  - The best way forward would be to look at a combination of standardised biomass fuel + a stove designed to the specifications of the fuel



Agricultural/  
Forestry/Garden  
Waste



Renewable  
Charcoal



Samuchit Sarai  
System



# 2000s



- Commercialisation of Improved biomass fueled cooking energy devices was the mantra of the decade!
- Establishment of Samuchit Enviro Tech Pvt Ltd
  - Manufacture and distribute clean cooking energy devices.
  - Create a network of enterprises to cover the last mile.
- **Uphill task to sell to rural end users**
  - Subsidy hangover
  - Aspiration for LPG
  - Women do not value their own health
  - The improved designs involved changing cooking practices, for relatively insignificant efficiency gains.
- Failed to sustain as a business.

# 2010s



- Financial sustainability has been achieved by:
  - Selling improved cook stoves and kitchen waste biogas plants primarily to urban middle class households, commercial/charitable establishments, etc.
  - To reach rural poor, we focus on selling clean cooking devices to donor-driven/government programmes.
  - Expanded the scope of our activities to sustainable lifestyle products and services
- **Observations:**
  - Rural people are more interested in improved devices because these are being marketed in urban areas.
  - Whether urban or rural, whether rich or poor, most end users perceive the improved device as a secondary or stand by device.
  - Cost is not a huge barrier if people are convinced of utility.

# Important Realisation



- Households – urban or rural – use multiple cooking energy devices.
- Just because a household possesses a clean cooking energy device does not guarantee elimination of indoor air pollution or black carbon emissions or protection of forest.
- **How do I induce a household to use my clean cooking energy devices as the primary cooking energy device in the kitchen??**

# Cooking Energy Service Matrix



- **Versatility:** Boiling performance, Roasting performance, Baking performance
- **Convenience:** Time for 'START', Time for 'STOP', Time for 'TEMPERATURE CHANGE'
- **Economics:** Operating cost, Capital cost, Possible earning from use
- **Safety:** **CO and PM emissions**, Stability, Temperature of outer body
- **Supply and Service:** Installation required or not, Service provided or not, Manufacturing capacity
- **Environmental Impacts:** **Energy Efficiency, GHG emission reduction potential, Carbon Footprint over lifecycle**
- **Fuel/Energy Source:** Multi-fuel or not, Availability of fuel/energy source locally

# What next?

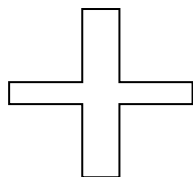


- In a target population, identify priorities of stakeholders.
- Develop or source devices that score high on the top priorities of the target population, for dissemination in that area.
- This approach will increase the chances of making a 'sell' and the device being used as a primary cooking device.
- **Current Status:**
  - Working with Ashden India Renewable Energy Collective to develop a decision support tool based on this approach, with funding from GiZ.
  - Field testing almost completed.
  - Tool should be available in a few months.



# Agenda for future

- More work needs to focus on ‘hybrid’ cooking energy devices.
- Example:
  - A wood-biogas hybrid stove that can operate on either wood or biogas alone, or in combination.
- Biogas based on food/kitchen waste can replace LPG universally – design options are needed to suit the requirements of different strata of society.



Instructional  
video

Locally  
purchased tanks  
and pipes





## Key Message

**Biomass fueled clean cooking devices are needed for everyone to shift away from a non-renewable to renewable cooking energy without compromising on quality of cooking service!**



**Thank you!**

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