Are Indian homes ready for electric cooking (eCooking)?: Insights from India Residential Energy Survey (IRES) 2020

Speaker : *Sunil Mani, Programme Associate, Council on Energy, Environment and Water (CEEW)*

Co-Authors *– Shalu Agrawal; Karthik Ganesan and Abhishek Jain*

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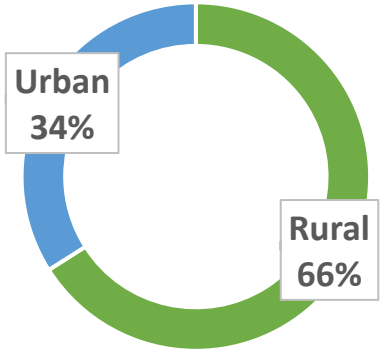
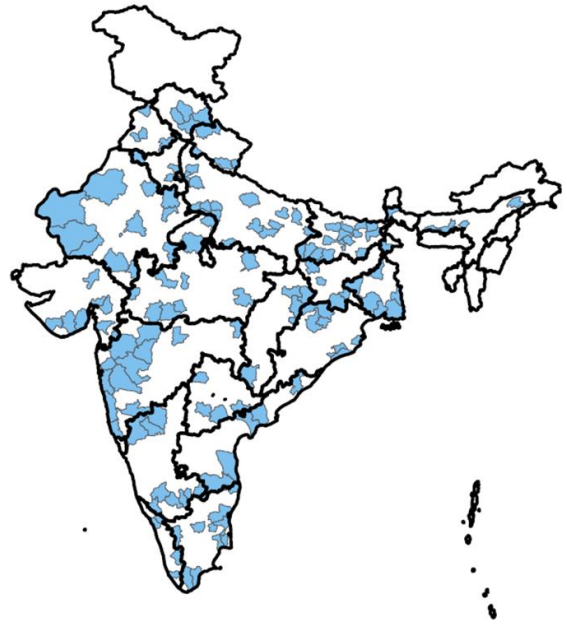
India Residential Energy Survey (IRES) 2020

- Covered 152 districts from 21 most populous states of India

14,850





Multi-stage stratified sampling

21 STATES
covering 97% population

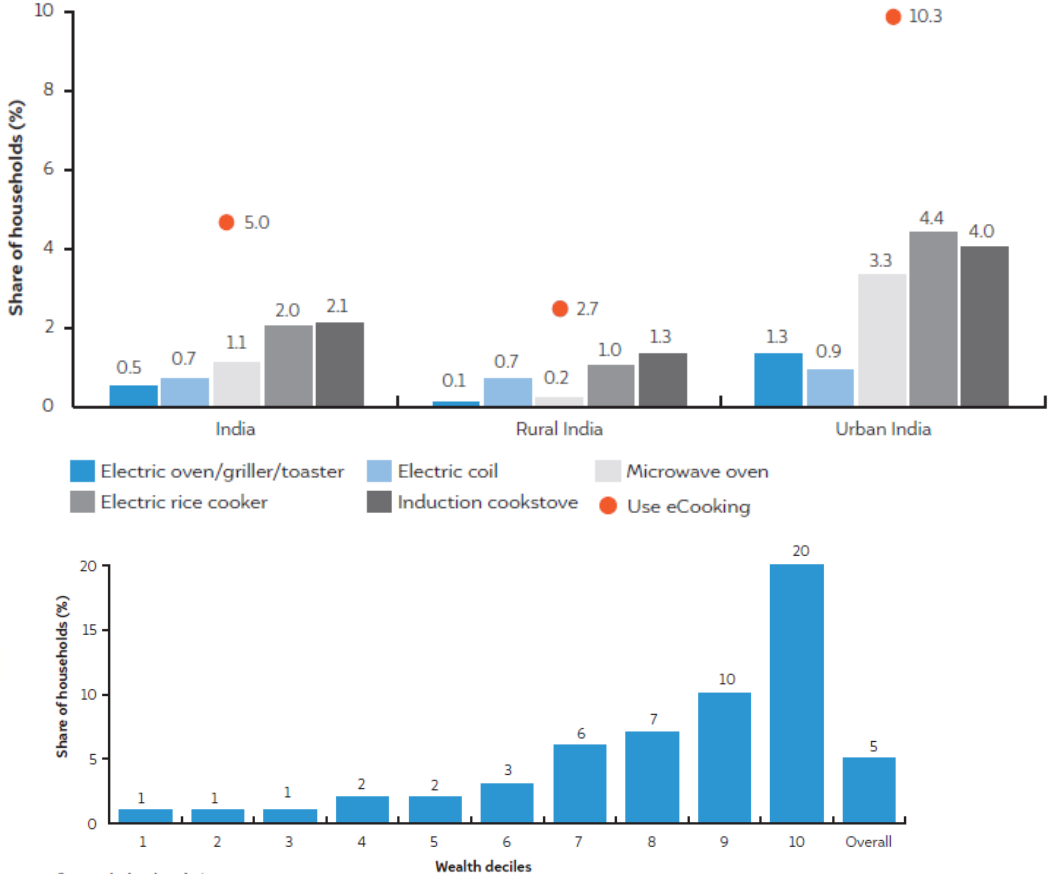
152 DISTRICTS
Cluster sampling

1210 VILLAGES & 614 URBAN WARDS
Cluster sampling

14,850 HOUSEHOLDS
8 from each village/ward

Only 5 per cent Indian homes use an eCooking device

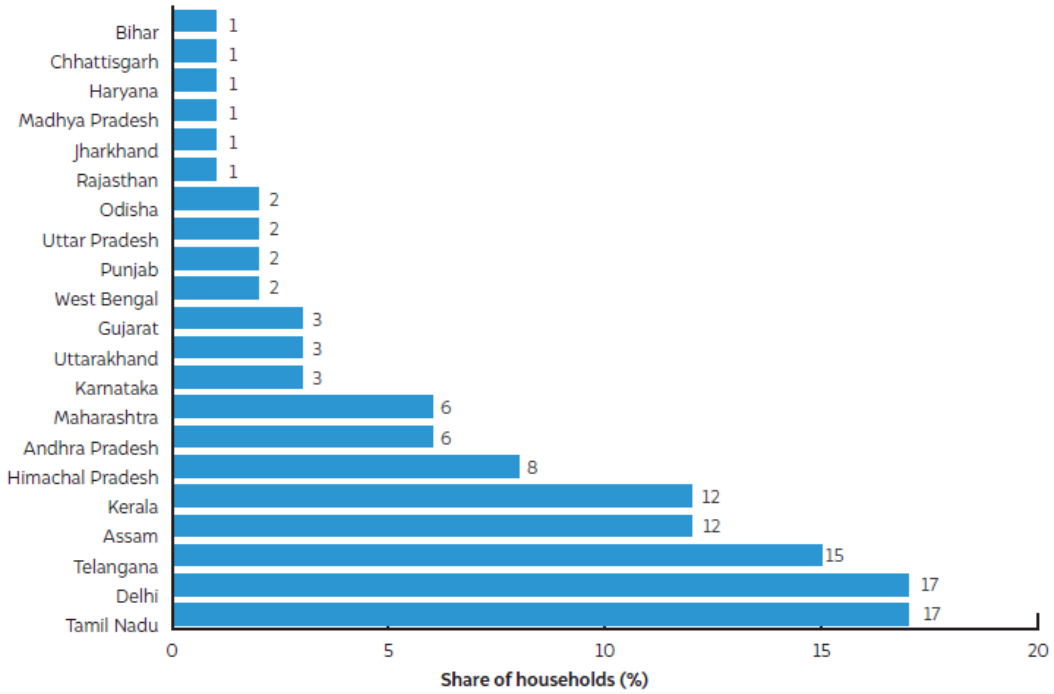
Most commonly used devices:
Induction stoves & rice cookers



Source: CEEW (2021) *Are Indian homes ready for eCooking?*

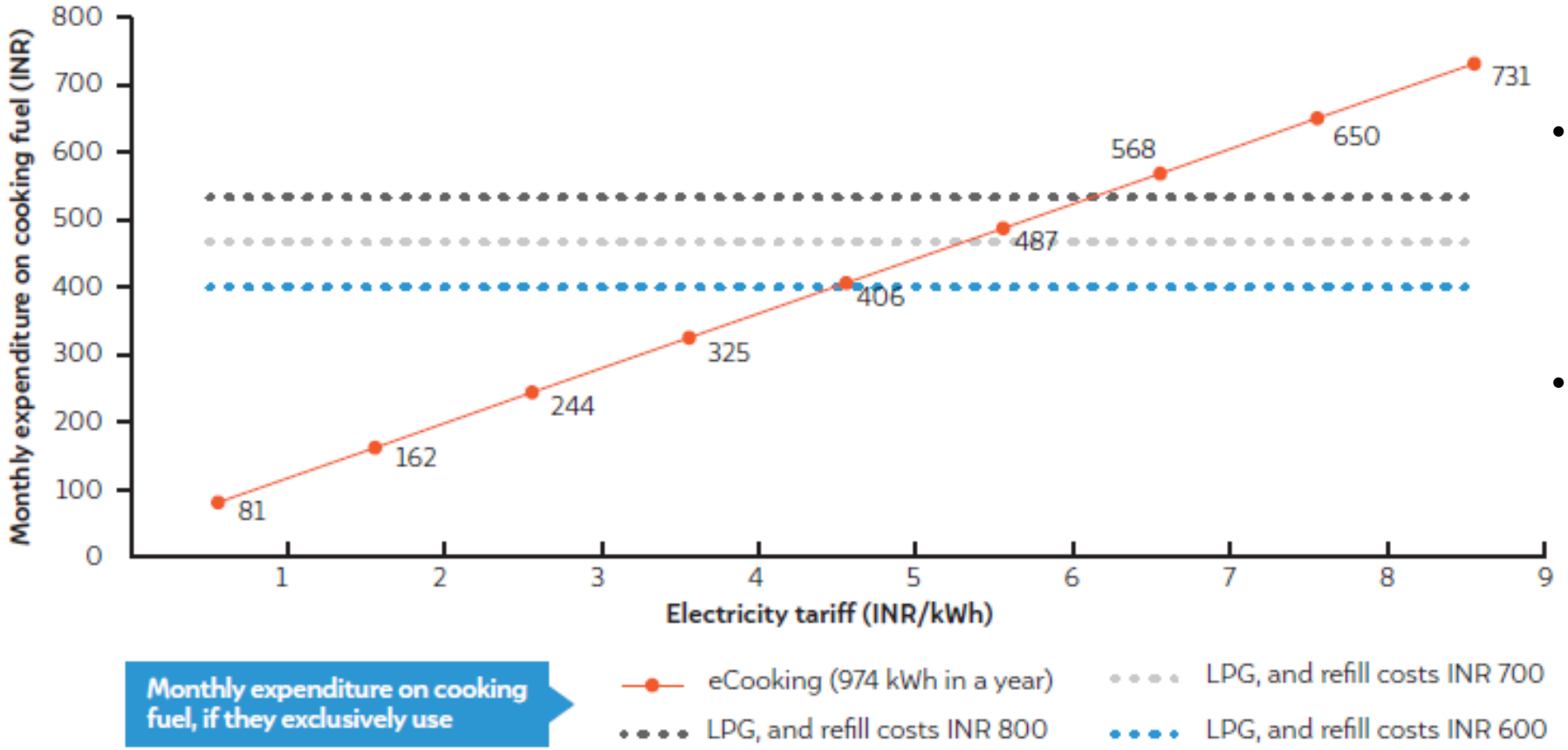
Potential determinants of eCooking adoption:

- Economic status and urbanisation
- Power tariffs and payment discipline



How does the cost of using eCooking compare with LPG?

- eCooking **vs** LPG

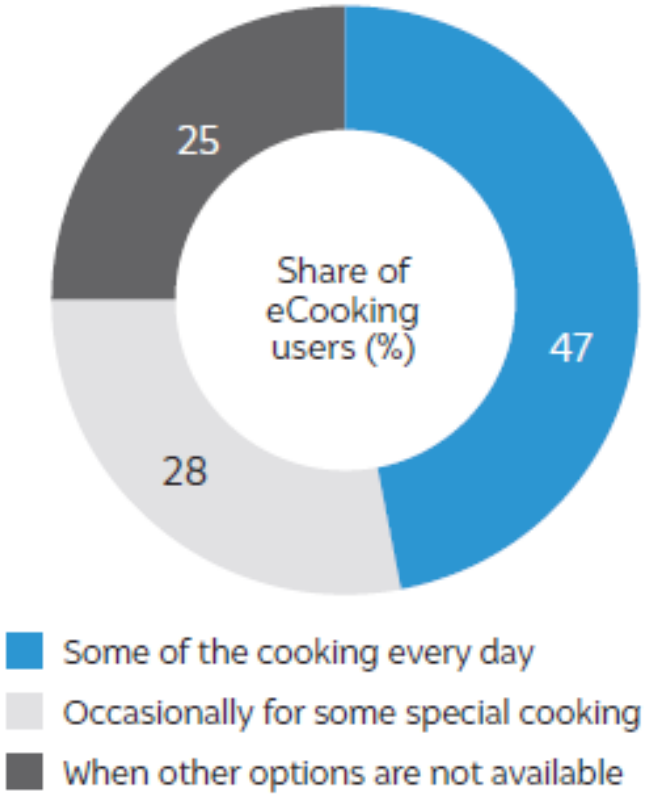


Source: CEEW (2021) *Are India homes ready for eCooking?*

- eCooking cheaper than LPG (INR 900 or USD 12.3) for HHs paying < INR 7.4 (USD 0.09) per unit
- But upfront investment (~INR 4000 or ~USD 55) – a significant barrier for many HHs

eCooking is used only to supplement the cooking energy needs

Source: CEEW (2021) *Are Indian homes ready for eCooking?*



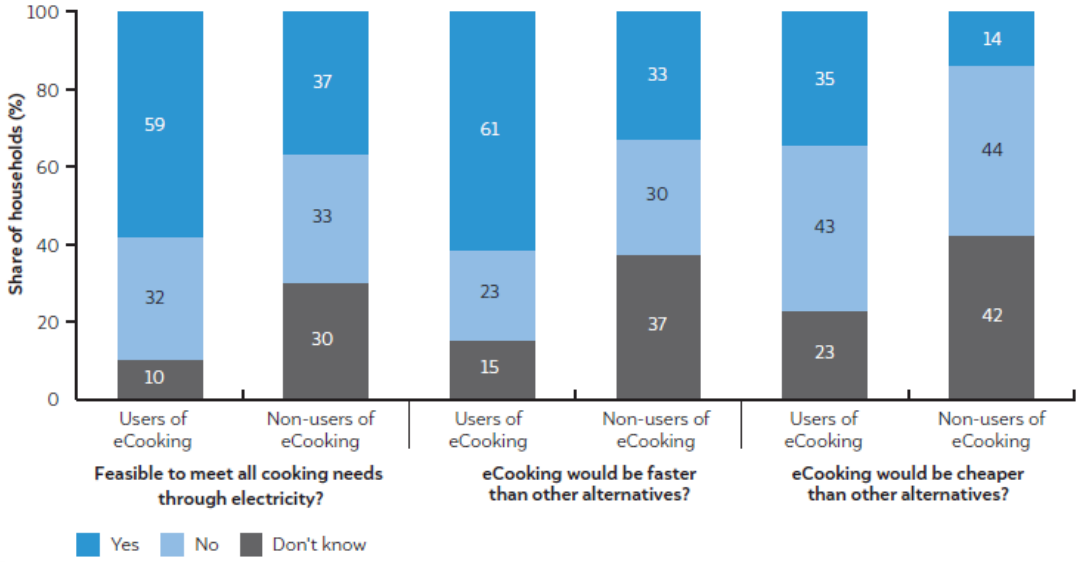
While eCooking is cost effective, it needs to be more adaptable.

- 95% of eCooking users have LPG, and 92% of them use LPG as their primary cooking fuel.
- Only half of eCooking users use it daily for some of their cooking needs.

Significant uncertainties around advantages/disadvantages of electricity-based cooking among non-users

- **Perception barrier**: HHs without prior experience of electric appliances are uncertain about their benefits/costs.

Richer HHs are more optimistic about eCooking and most likely to switch



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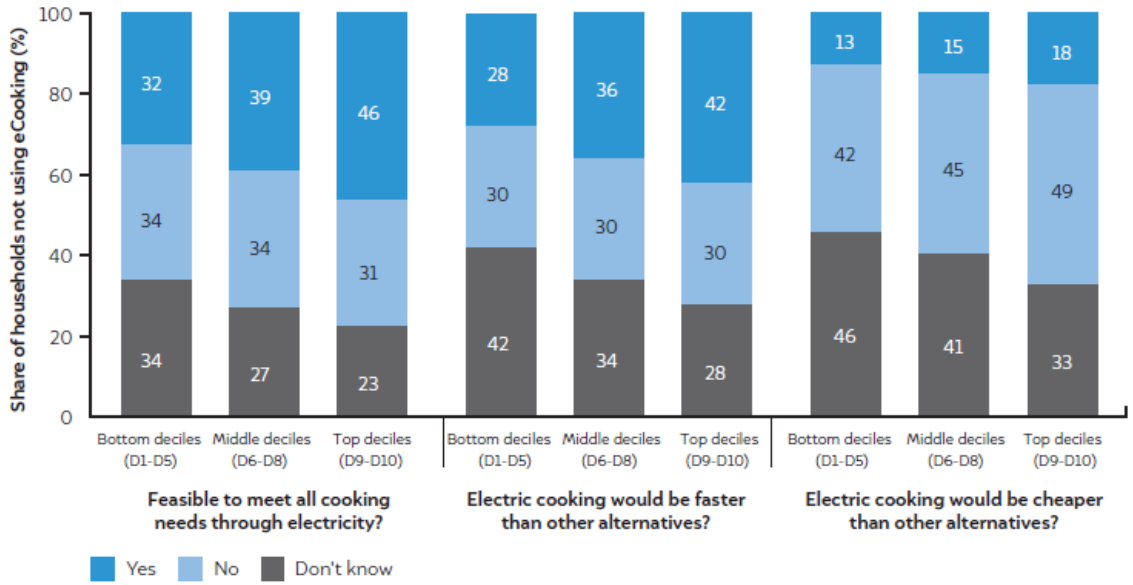
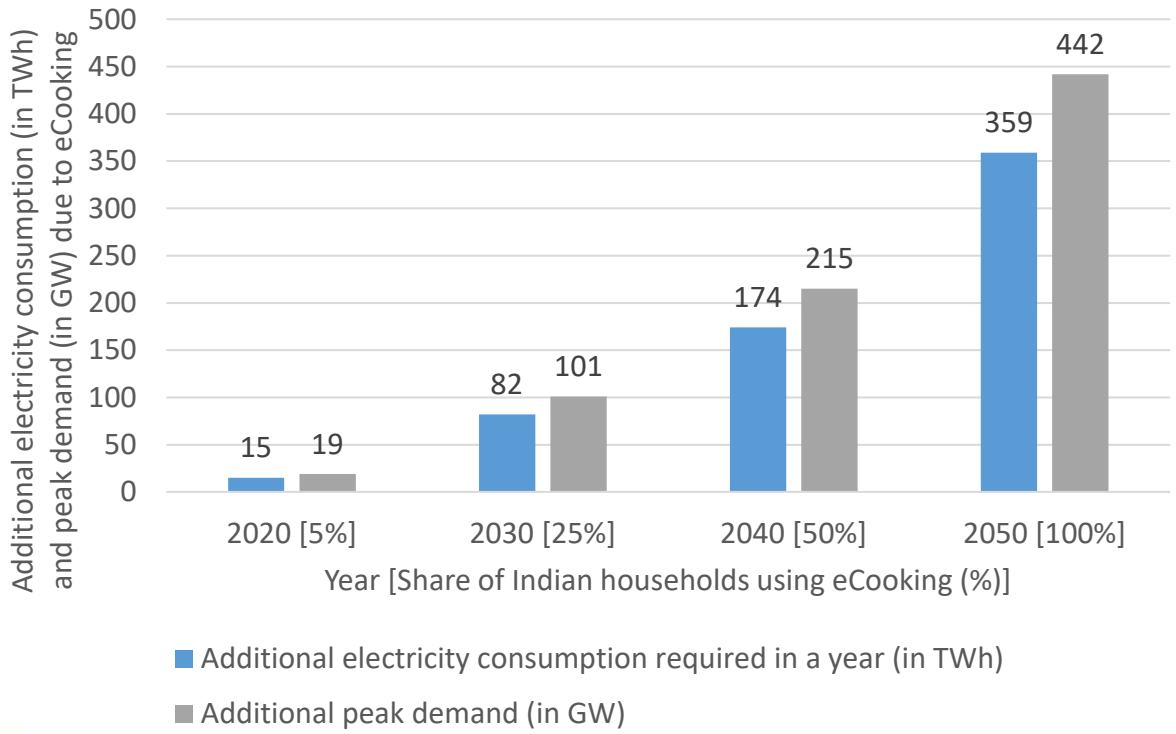


Future implications of switch to eCooking on power demand



Source: CEEW (2022) *Are Indian homes ready for eCooking?*

Installed capacity in 2019-20: 370 GW

Grid capacity needs to be more than doubled in 2050 to account for additional load from eCooking alone.

Way forward and recommendations for future research

- Need to incentivise R&D for low-cost eCooking solutions.
- Devise financing solutions to stimulate demand for eCooking devices.
- Improve the adaptability to suit the culinary habits of households.
- Address the grid infrastructure issues to improve the reliability of eCooking.
- Conduct in-depth studies to capture the household experience and perception of eCooking under diverse social contexts.
- Need to continuously assess/monitor the additional electricity demand from eCooking as eCooking load will coincide with peak demand for electricity.

Thank You

For discussions/suggestions/queries email: sunil.mani@ceew.in; shalu.agrawal@ceew.in

Link to CEEW's publication on electric cooking - https://www.ceew.in/publications/are-indian-homes-ready-for-electric-cooking-transition

Link to download India Residential Energy Survey (IRES) 2020 unit level data - https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/U8NYUP

Link to other IRES publications on household electricity access, energy efficiency & cooking energy access – https://www.ceew.in/india-residential-energy-survey-ires

India Smart Grid Forum
CBIP Building, Malcha Marg,
Chanakyapuri,
Delhi-110021
Website: www.indiasmartgrid.org