



# **Dissemination Approach of Improved Biomass Stoves in Indian Himalayan Region**

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# The need



- **World:** Around 2.6 billion people
- **India:** 772 million people (66% of the total population)
  - 750 million people subjected to the adverse impacts on health from household air pollution (HAP)
- **Rural India:** 144 million households (86% households)





# Clean cooking options



Cleaner option



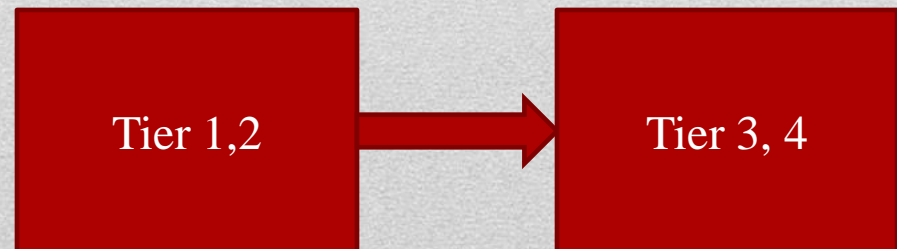
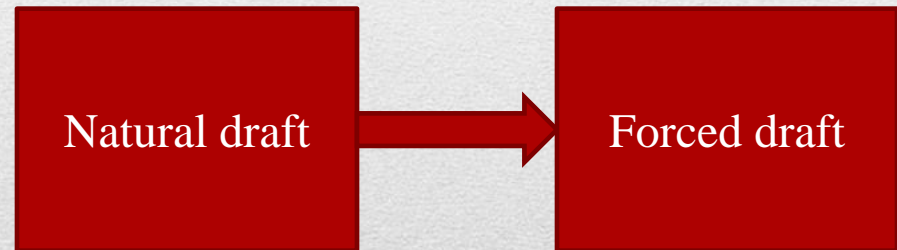
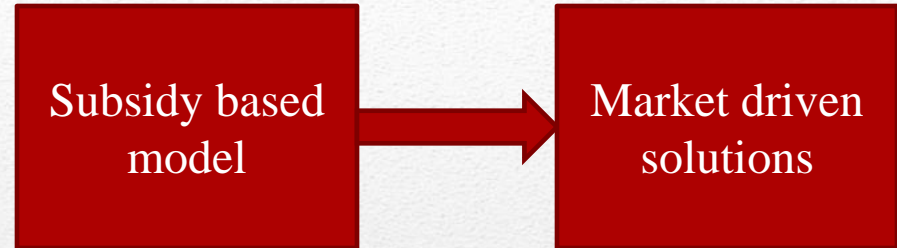
Clean option



Clean option

# Improved biomass stove – The shifts

Concentrated efforts began in 1980s with National Programme on Improved Cookstoves (NPIC) – Subsidy based model



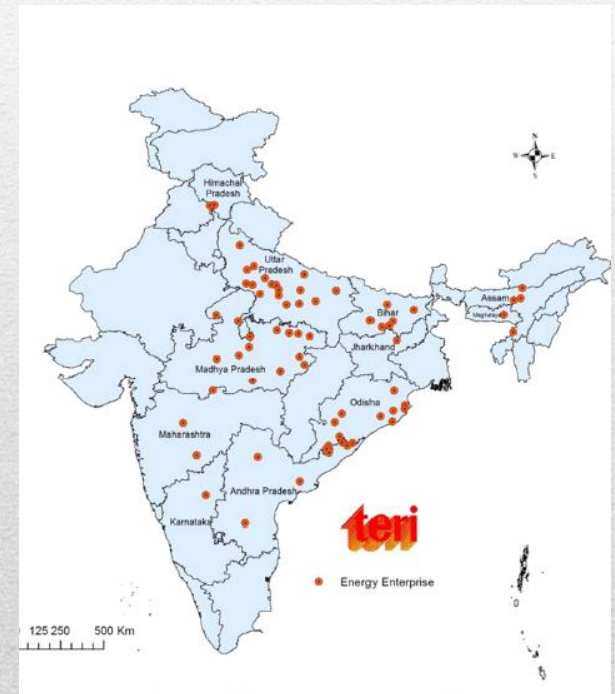


# Clean cooking programme

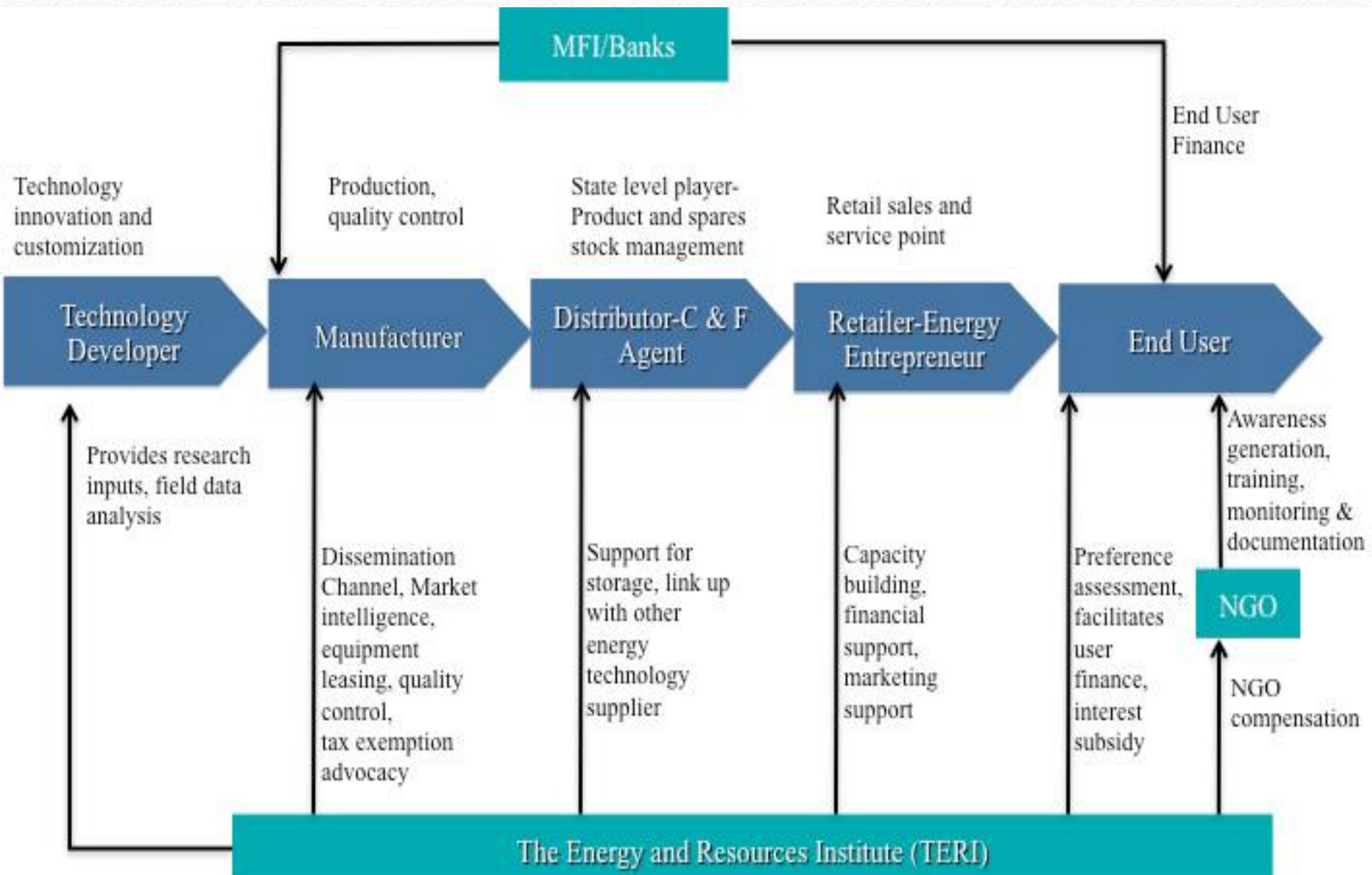
Supported by DfID  
Implemented by TERI  
18 states in India covered

**Emphasized on creating market based solutions for forced draft Improved Biomass Cookstoves (IBC)**

- 75 Energy Enterprises were created
- More than 55,000 IBCs were disseminated
- Village level retailers/ SHGs were linked
- Manufacturing units established
- Eight different IBC models developed considering affordability aspects



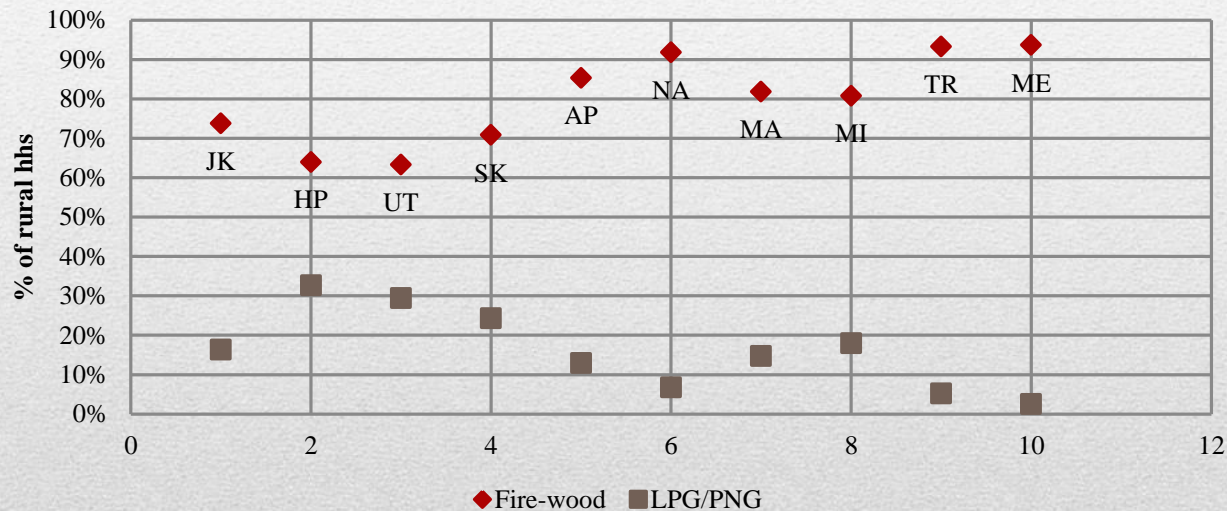
# The basic model





# The case of Indian Himalayan Region

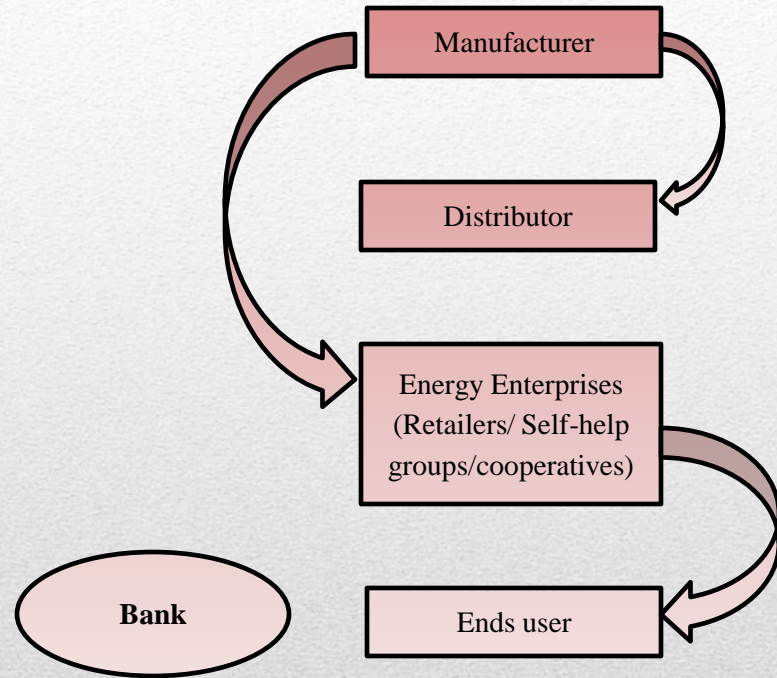
Dependence of rural households on firewood and LPG in IHR states



- Indian Himalayan Region: 54 lakhs households (63% households)
  - Rural Indian Himalayan Region: 50 lakhs (78% households)
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# The case of Himachal Pradesh

- 90% of the total population resides in rural area
- 65% depend on traditional burning of biomass
- 33% depend on LPG
- Number of IBCs disseminated – about 3000



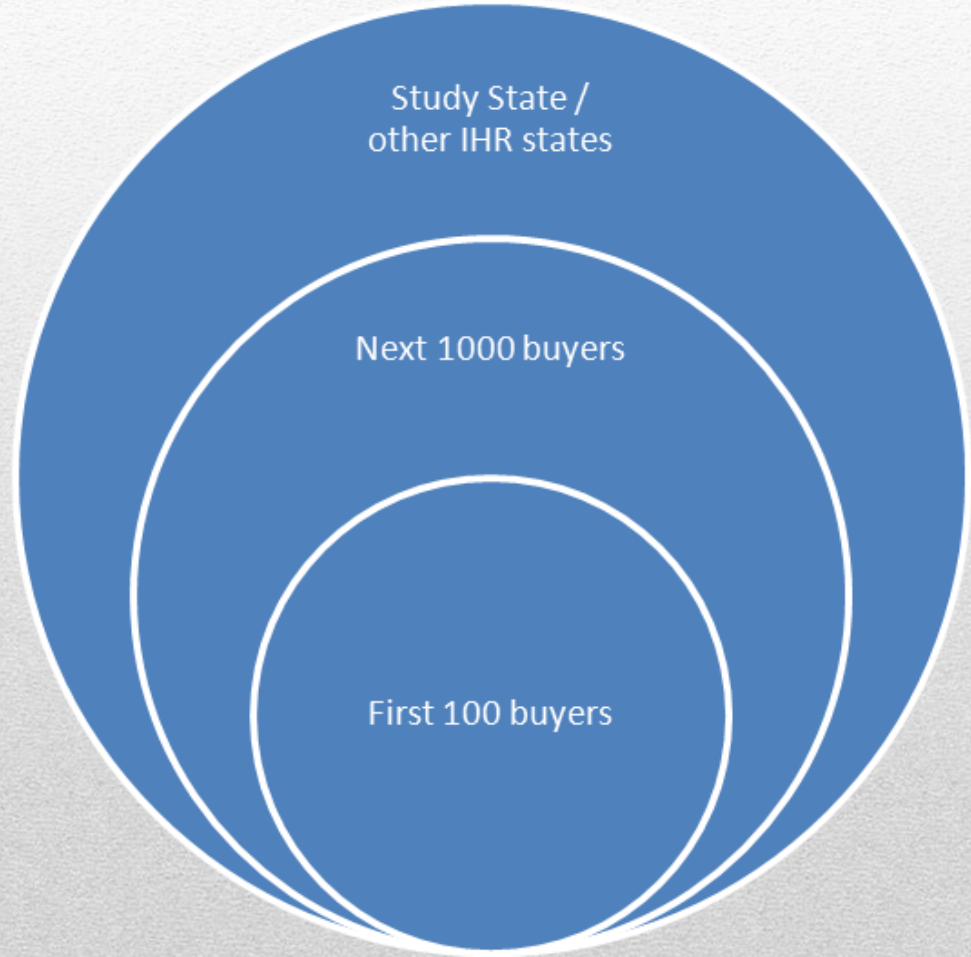


# The technology

- SPTL 0610
- Forced draft
- Thermal efficiency - 37% (against the average 17% approximate)
- Carbon Monoxide (CO) level - 2.25 g/MJ<sub>d</sub> (gram/Mega joule delivered)
- Total Particulate Matter of 147.40 mg/MJ<sub>d</sub> (milligram/Mega joule delivered)
- Approved by the Ministry of New and Renewable Energy.
- High combustion efficiency thereby reducing particulate matter emission (per unit of energy delivered) and carbon monoxide by 72% and 80% respectively in comparison to a traditional mud stove



# The study





# Results

<b>Factors (% of households)</b>	<b>First 100 buyer's households</b>	<b>Next 1000 buyer's households</b>
<b>BPL category</b>	0	8
<b>Usage of LPG during pre –purchase scenario</b>	98%	77%
<b>Usage of traditional mud stove during pre –purchase scenario</b>	100%	91%
<b>Female headed households</b>	25%	25%
<b>Male members responsible for collection of firewood</b>	60%	12%

# Initially what to look at to promote IBCs through market mode

- Proportion of population belonging to higher three MPCE classes
    - (USD 24.78->41.03)
  - Proportion of households using LPG as primary cooking fuel
  - Proportion of female headed households
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# 3 A's in promoting IBCs

- Awareness
- Affordability
- Acceptance



# The indices for the identified indicators

State	% of population in higher three MPCE classes (USD 24.78->41.03)	% of hhs using LPG as primary cooking fuel	% of female headed hhs	Index
JK	0.63	0.46	0.00	0.29
HP	0.80	1.00	0.86	1.00
UT	0.43	0.89	0.86	0.79
SK	0.29	0.72	0.29	0.39
AP	0.59	0.35	0.21	0.32
NA	1.00	0.14	0.29	0.44
MA	0.15	0.40	0.36	0.21
MI	0.32	0.51	0.36	0.33
TR	0.00	0.09	0.36	0.00



# Conclusion

- A grant based approach proposed initially for the areas with
    - low household income
    - lower spread of LPG
    - lower number of female headed households
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# Thank you

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