Energy Poverty in India compounded by inequality (who, where, what & how much)

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- Lenin defined revolution as Soviets + electricity

- We could, define **Development as Democracy + Energy**
  (with due apologies to Lenin)

- **Energy poverty** is lack of access to modern energy services which affects the well being of the person concerned.

- There is obviously some lack of clarity since we need to grapple with the issues of
  - Availability : Is it there or not? e.g. Grid
  - Access: It is there but can you access it – e.g. Connection
  - Adequacy i.e. is it enough?
  - Quality i.e. does it serve the purpose?

(all of these have a bearing on well being, drudgery, exposure to emissions etc.)

This is okay, but how do you quantify?

One definition prescribes the floor:
"A person is 'energy poor' if she does not have access to at least:

(a) the equivalent of 35 kg LPG per capita per year (PCPY) from liquid and/or gas fuels or from improved supply of solid fuel sources and improved (efficient and clean) cook stoves, and

(b) 120kWh electricity PCPY for lighting, access to most basic services (drinking water, communication, improved health services, education improved services and others) plus some added value to local production

One still needs to grapple with the questions of

i)conversion efficiency,
ii) measures of energy poverty and
iii) the correspondence between economic poverty and energy poverty.

Two excellent articles deserve mention in this context;
i) On Measuring Energy Poverty in Indian Households, S. Pachauri et al
ii) Energy Poverty in Rural and Urban India - Are the Energy Poor Also Income Poor? Policy Research Working Paper: 5463
Shahidur R. Khandker, et al

However Pachauri et al look at the data of 1983-2000, while Khandker et al look at the 2005 IHDS data (one hopes they will look at the IHDS 2). The world has in the meantime ,moved on.

LET US LOOK AT THE CENSUS 2001, 2011 AND NSSO 66th round data

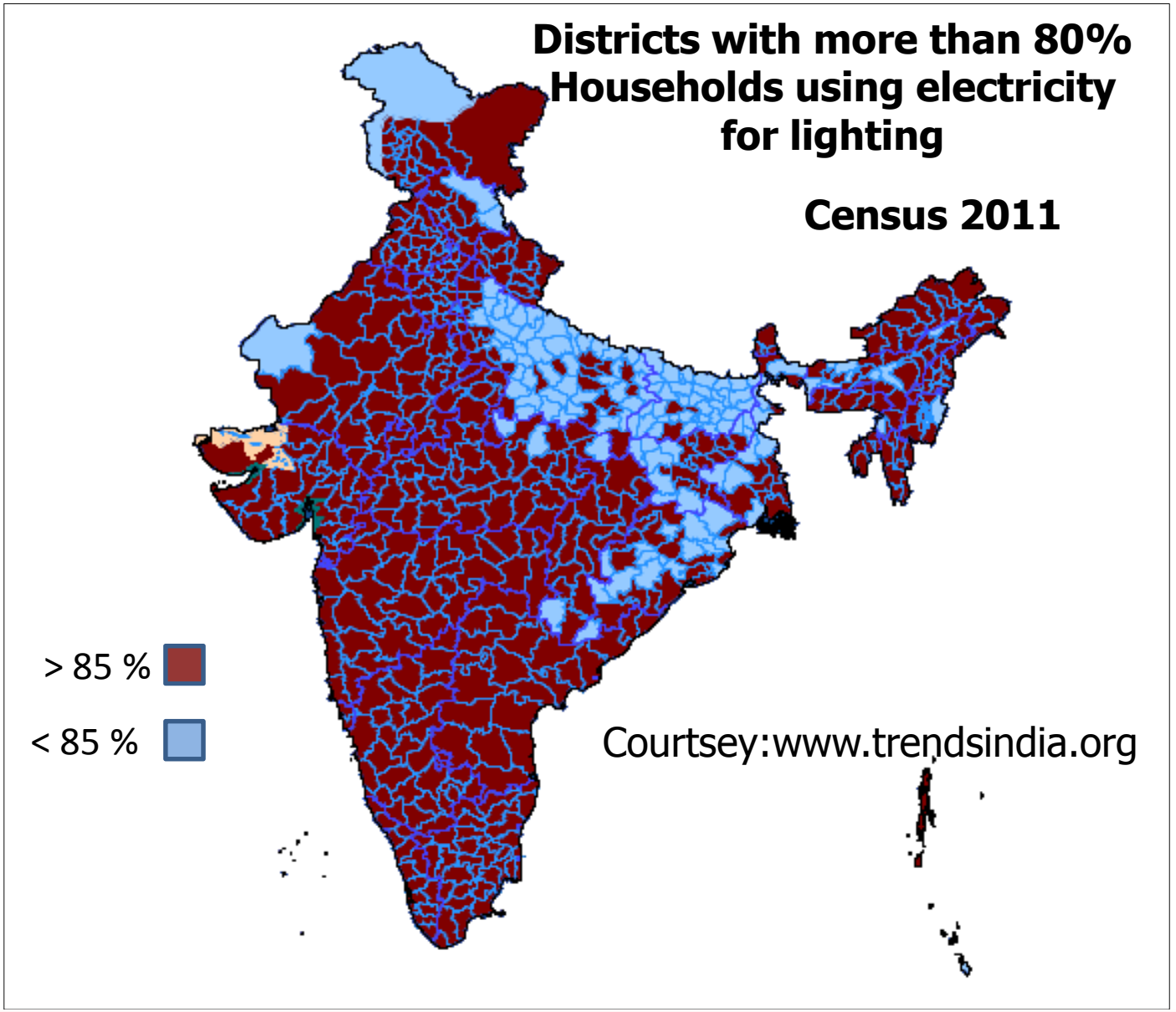
We take a look at

i) Who gets what : Lighting in India and Bharat
ii) Unacceptable lack of access (Using Kerosene for lighting)
iii) Cooking energy sources : Their distribution
iv) The ‘How much’ issue: disparities between
    a. Rural – urban,
    b. intra-state and
    c. inter-state
v) The quality issue: Dependence on firewood

What emerges then are i) Individual level issues
ii) Infrastructural issues
and iii) Governance issues

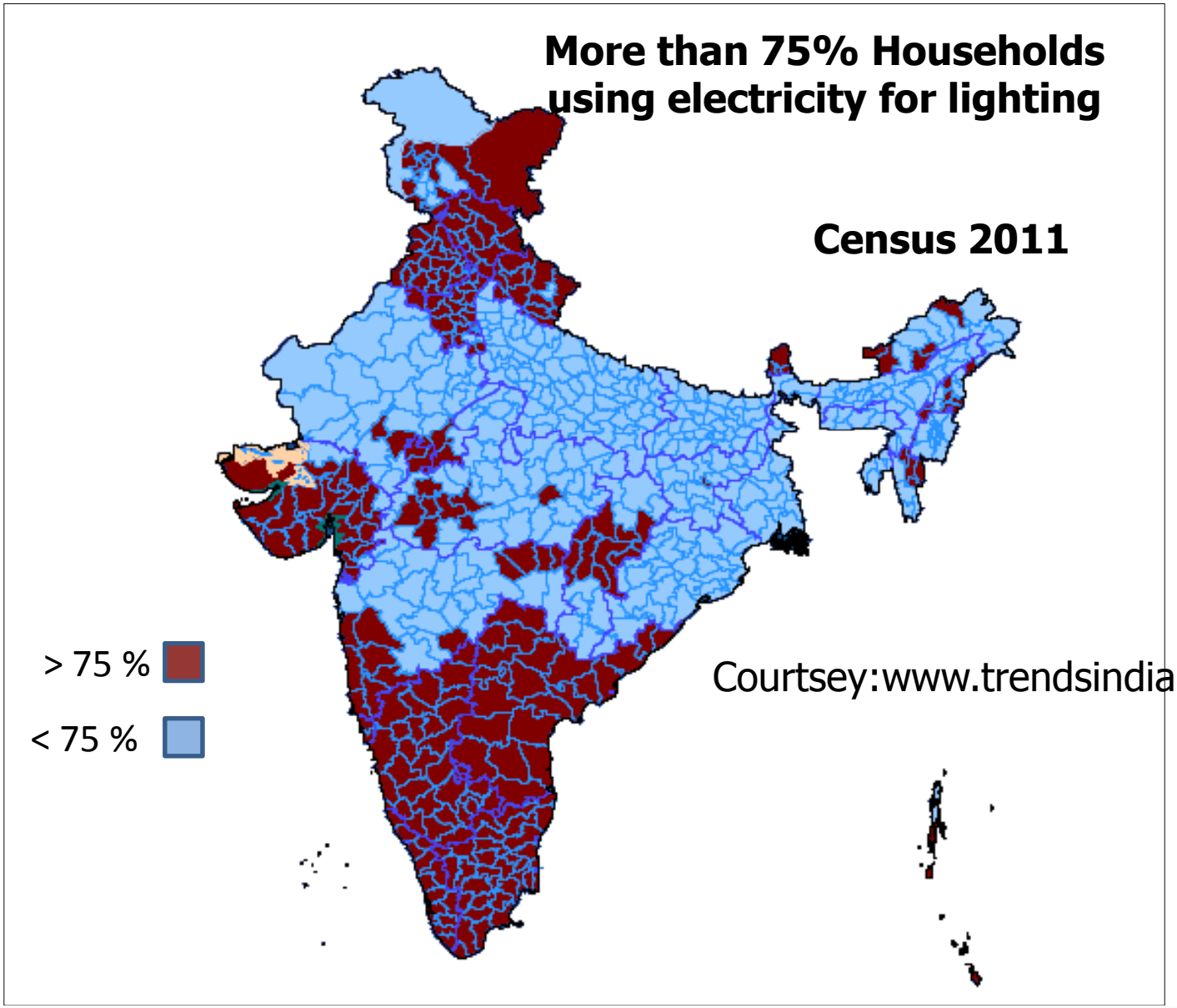
Sources of Light

Use of Electricity in Urban Sector



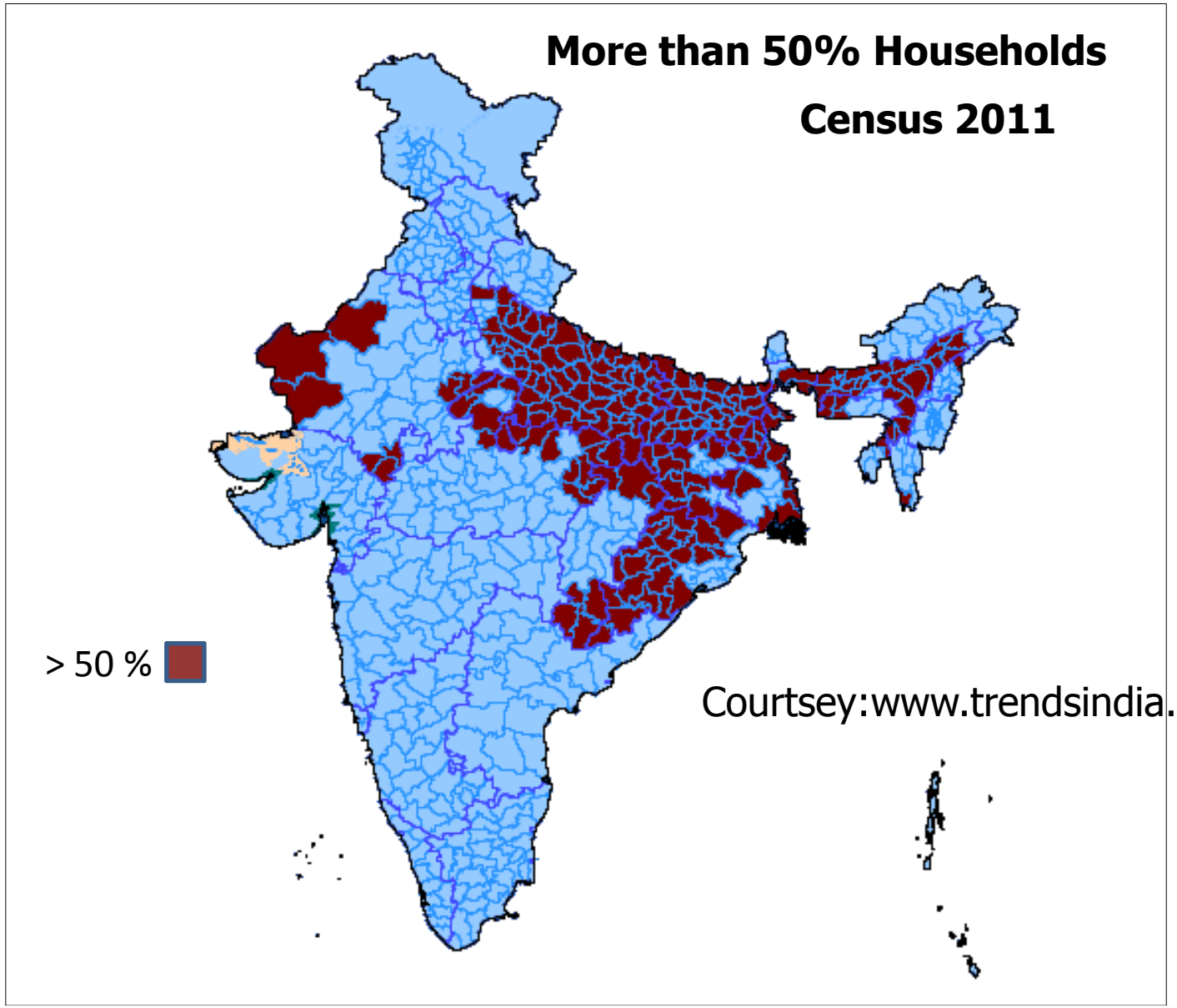
Source of Light

Use of Electricity in Rural Sector

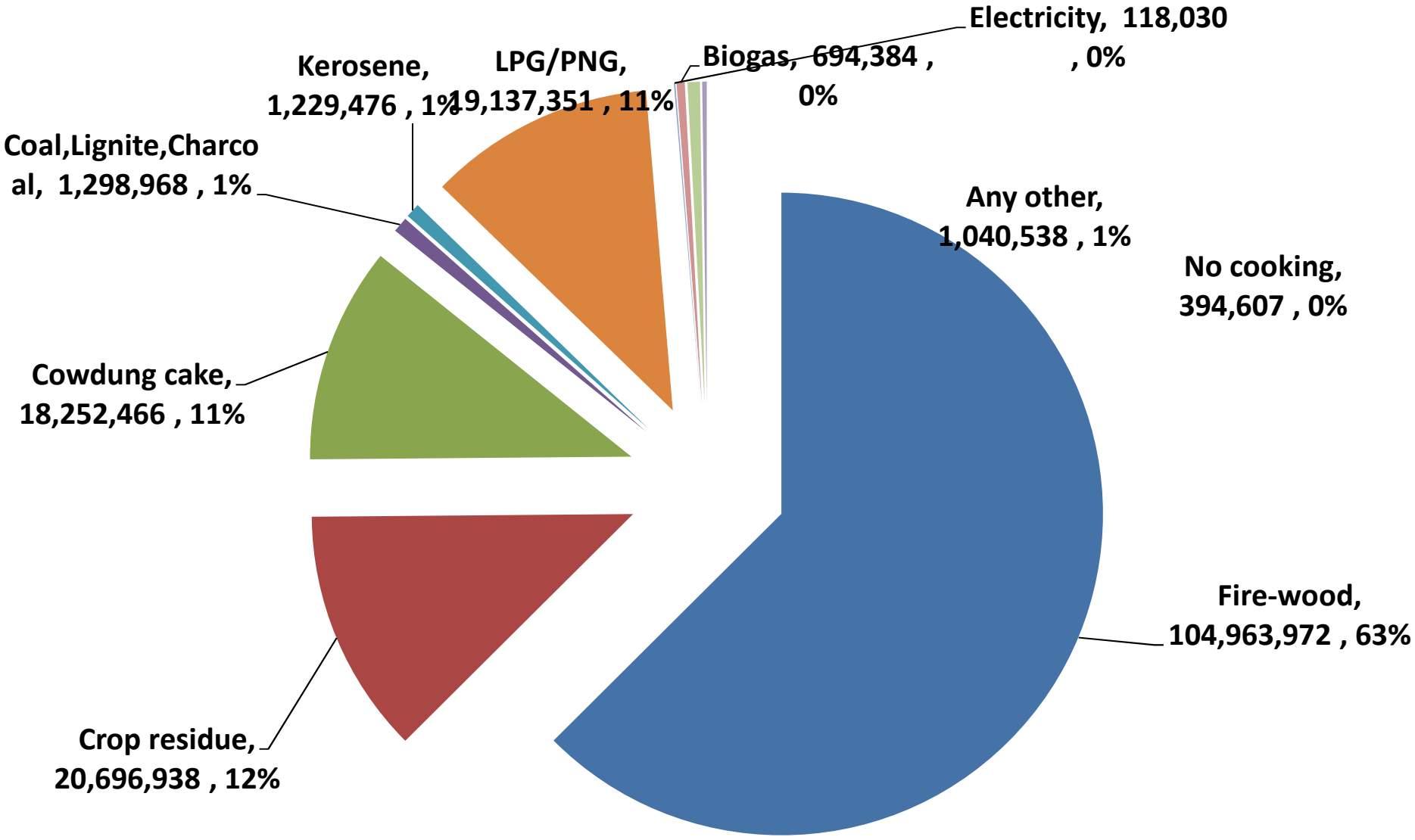


Source of Light

Use of 'Kerosene' in Rural Sector

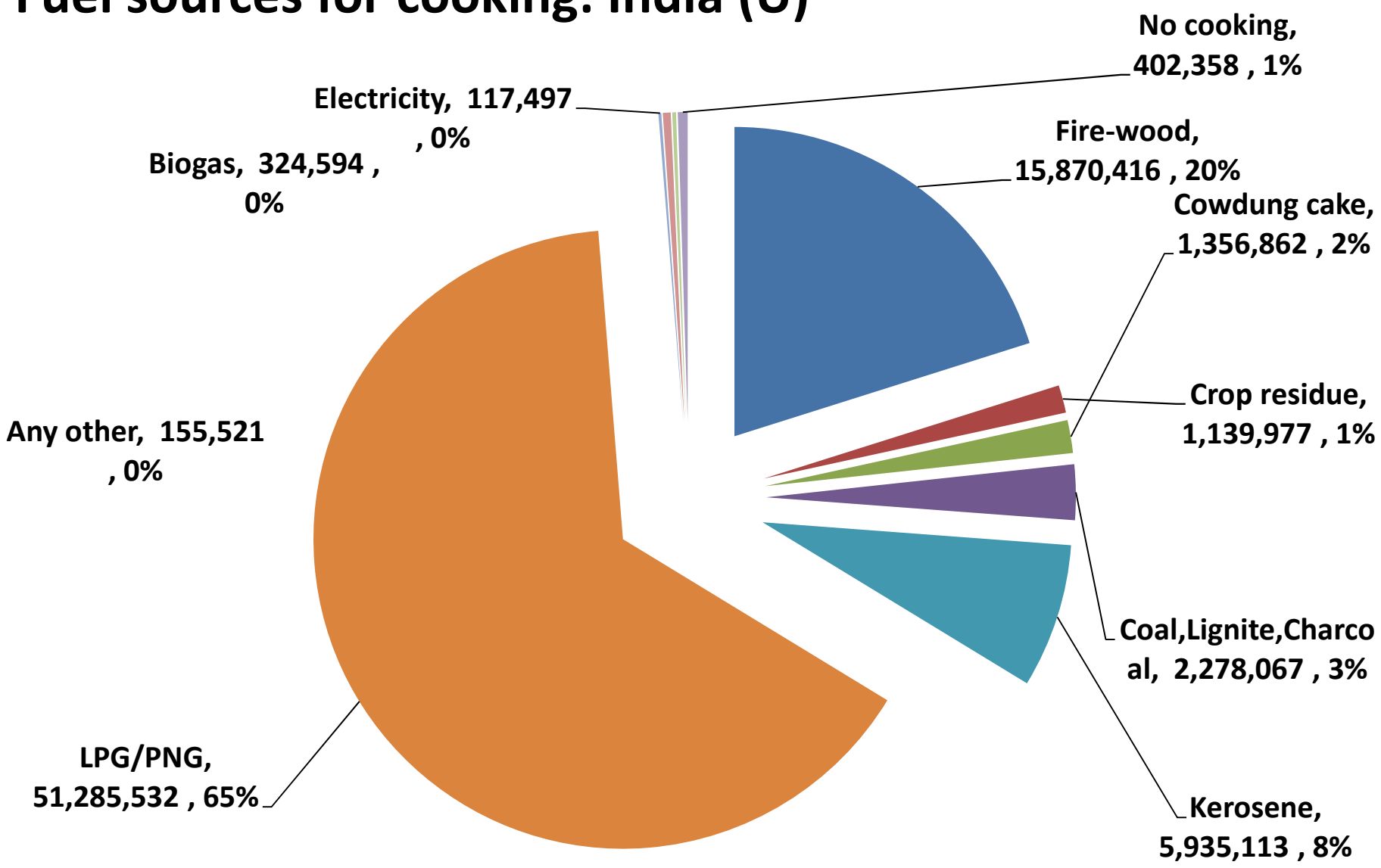


Fuel sources for cooking: India (R)



Courtsey:www.trendsindia.org

Fuel sources for cooking: India (U)



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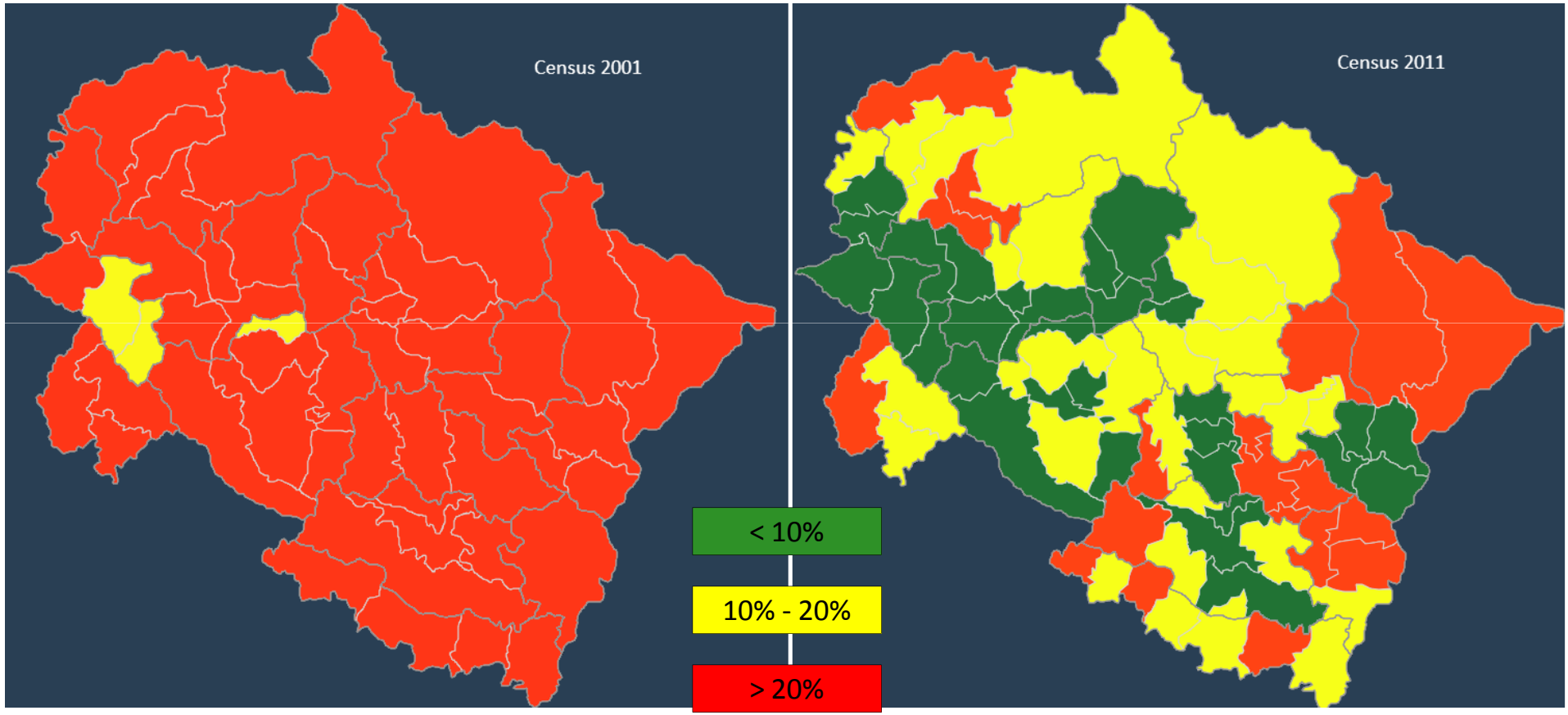
What changes have happened between 2001 and 2011?

Encouraging in some places

Kerosene as Source of Light in Rural Uttarakhand



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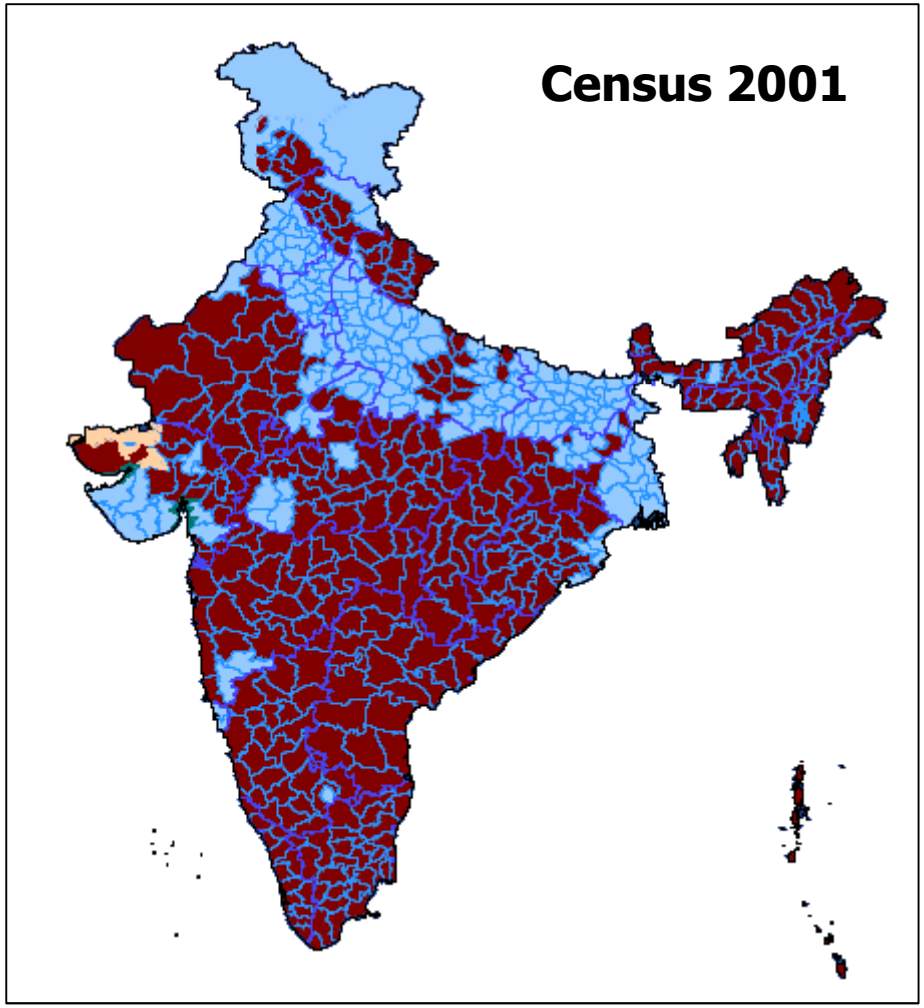
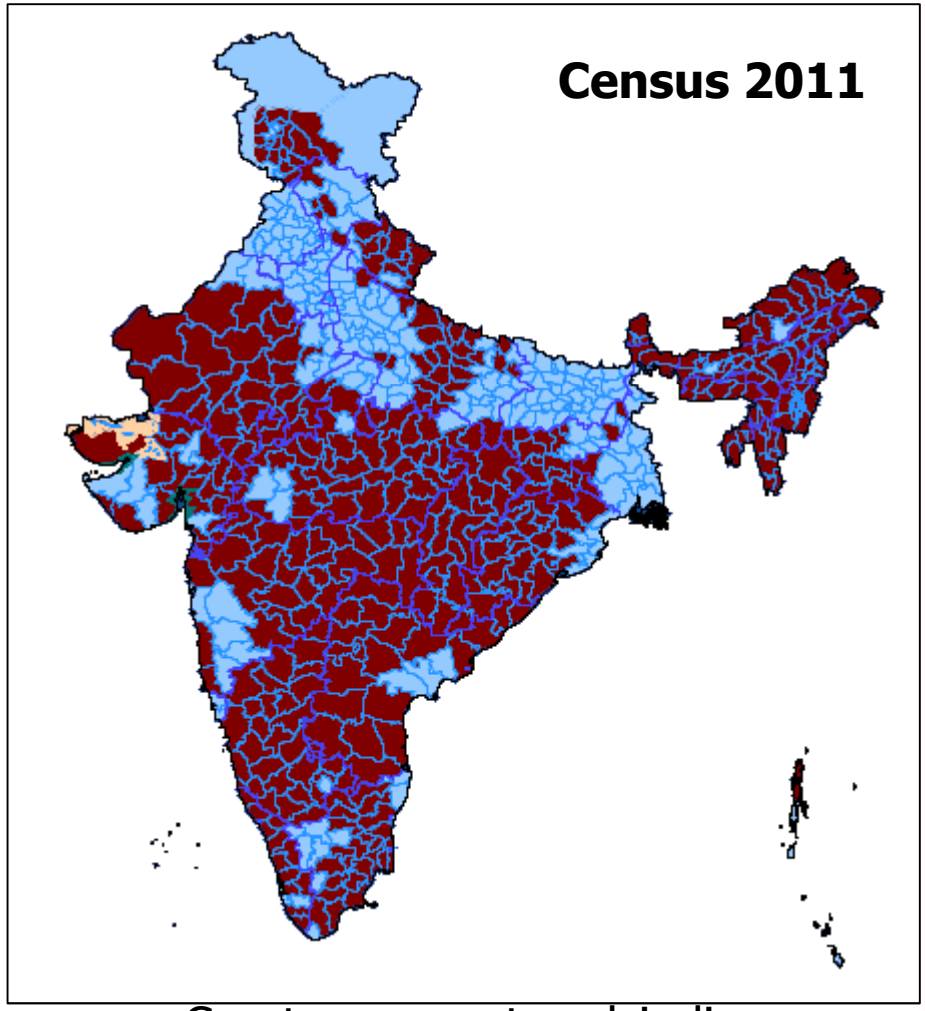
Not so encouraging in some cases

Use of Firewood in Rural sector

More than 62% households



More than 61% households



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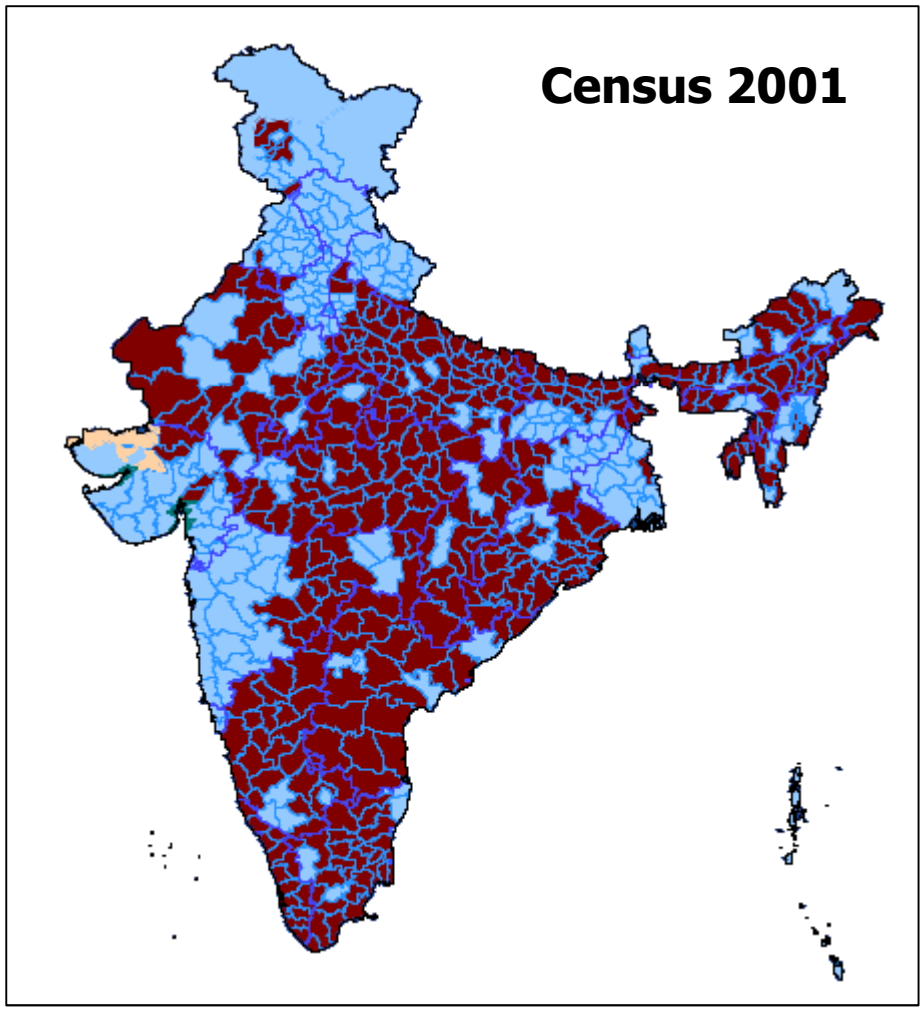
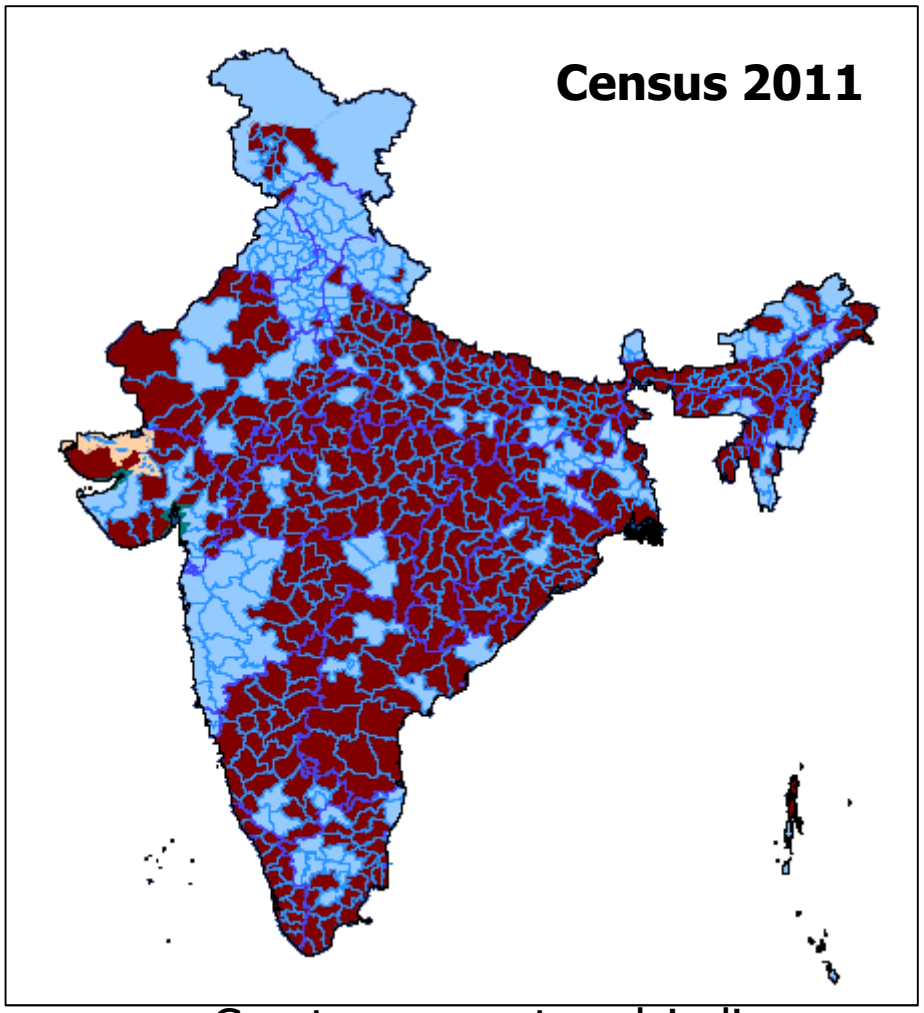
What changes have happened between 2001 and 2011?

Use of Firewood in Urban sector

More than 25% households



More than 20% households



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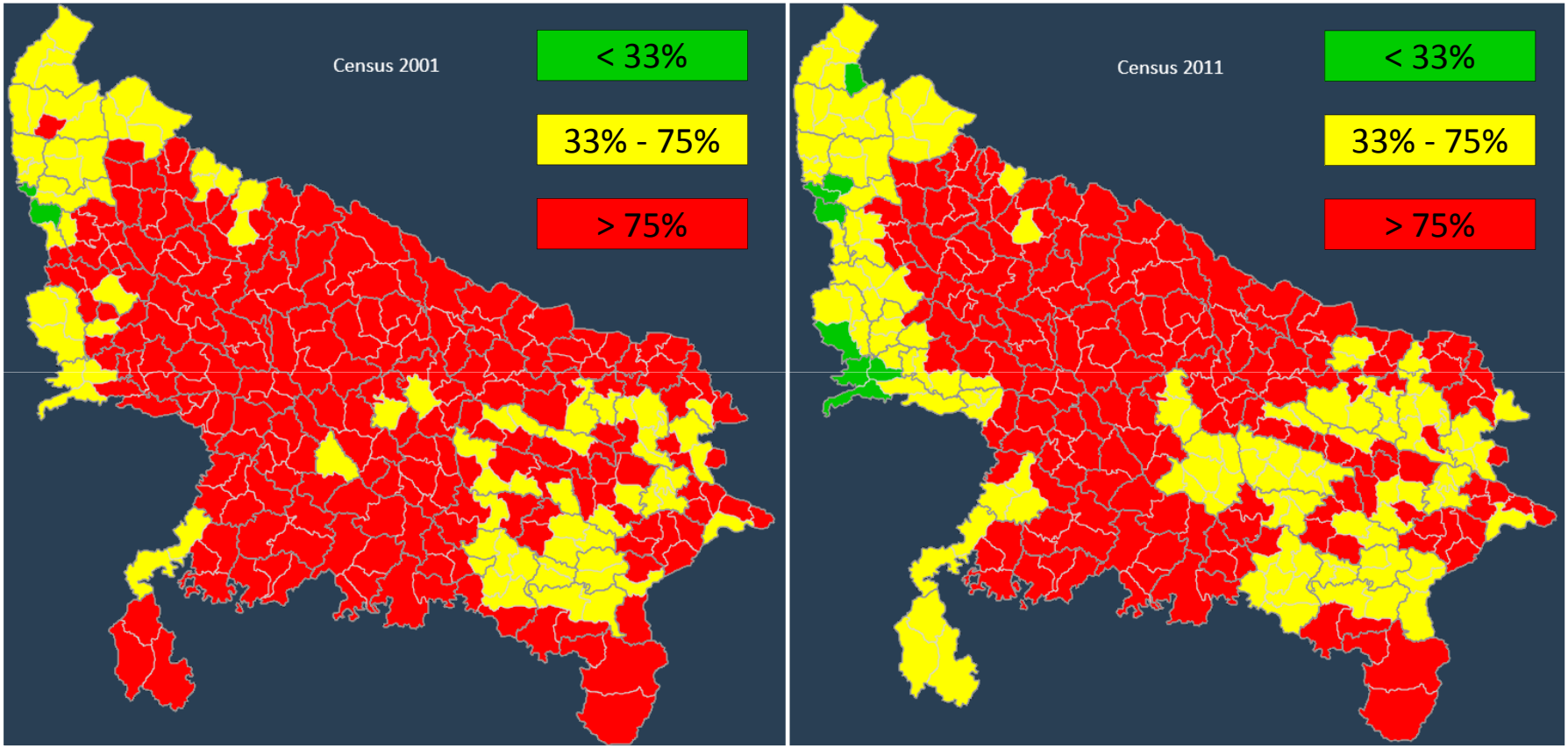
Discouraging in some places !

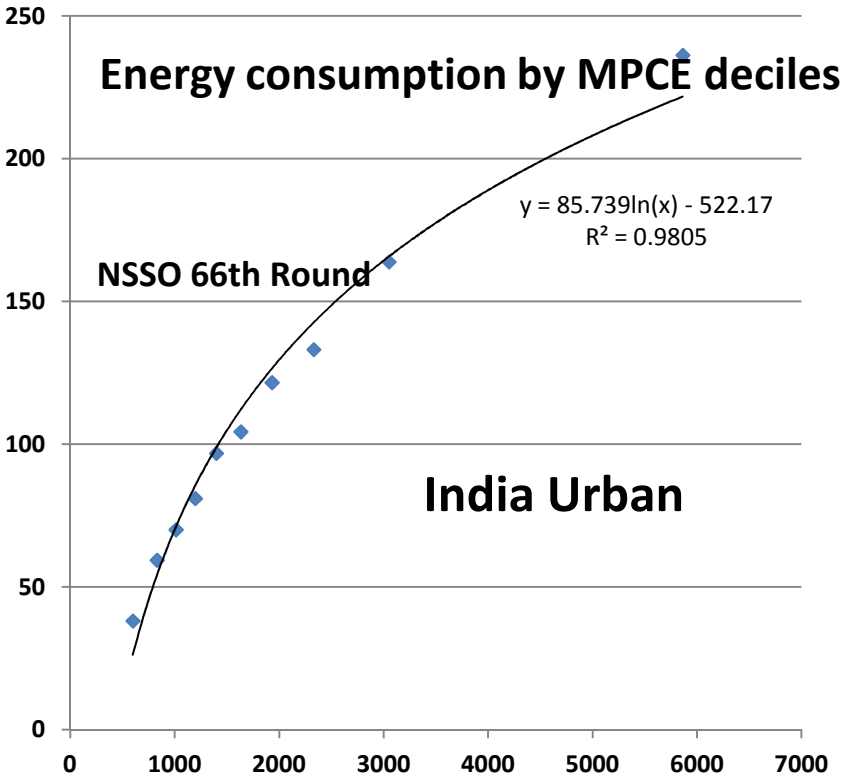


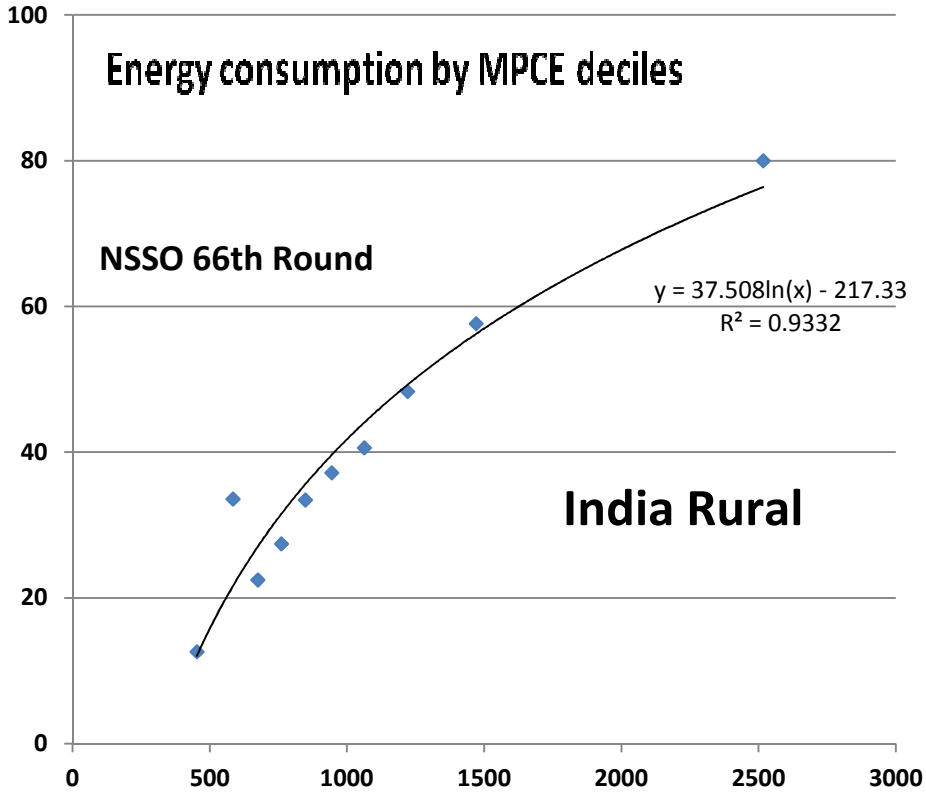
Kerosene as Source of Light in Rural Uttar Pradesh

(2001) (2011)

Courtsey:www.trendsindia.org

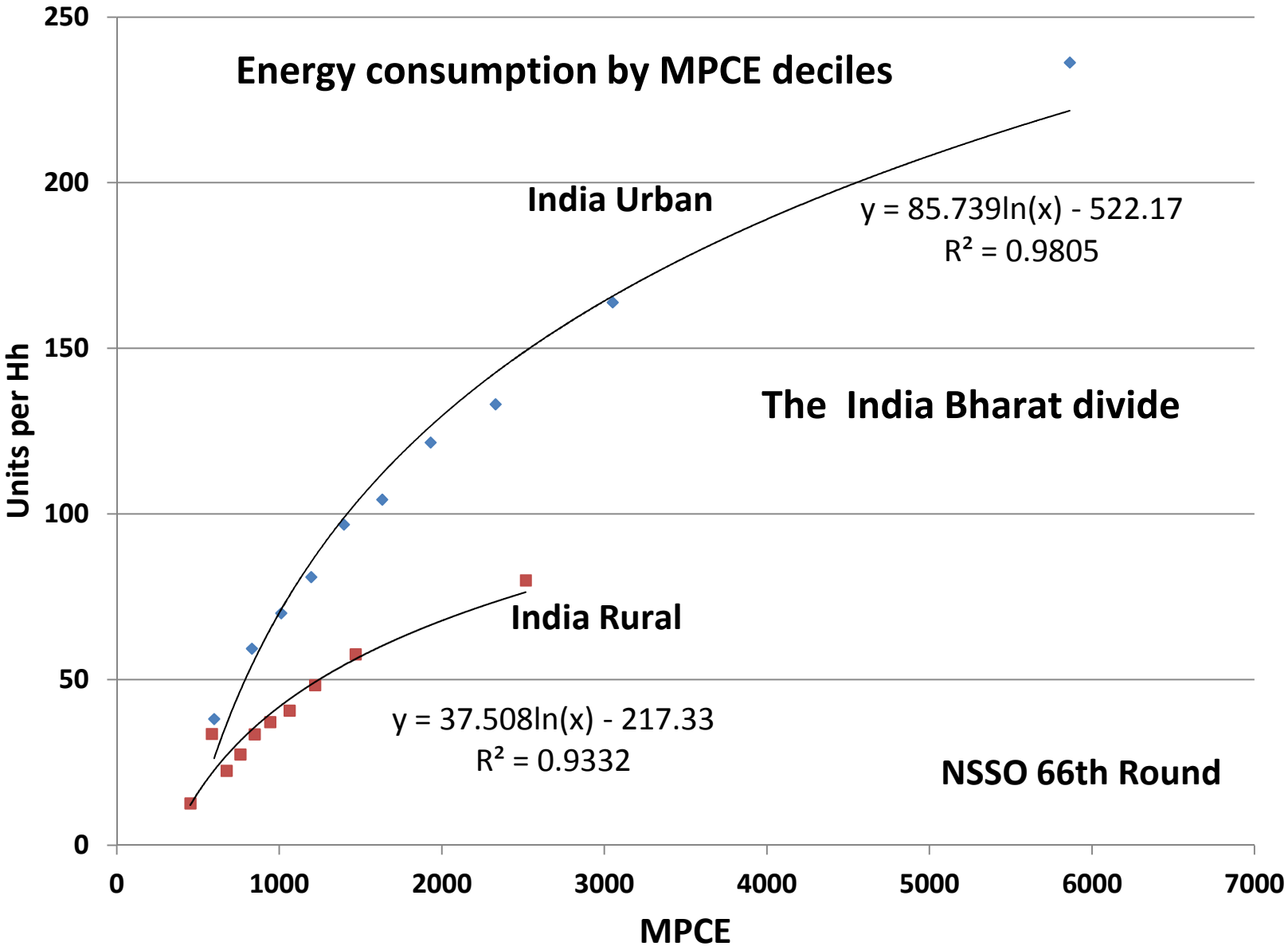
How Much ?

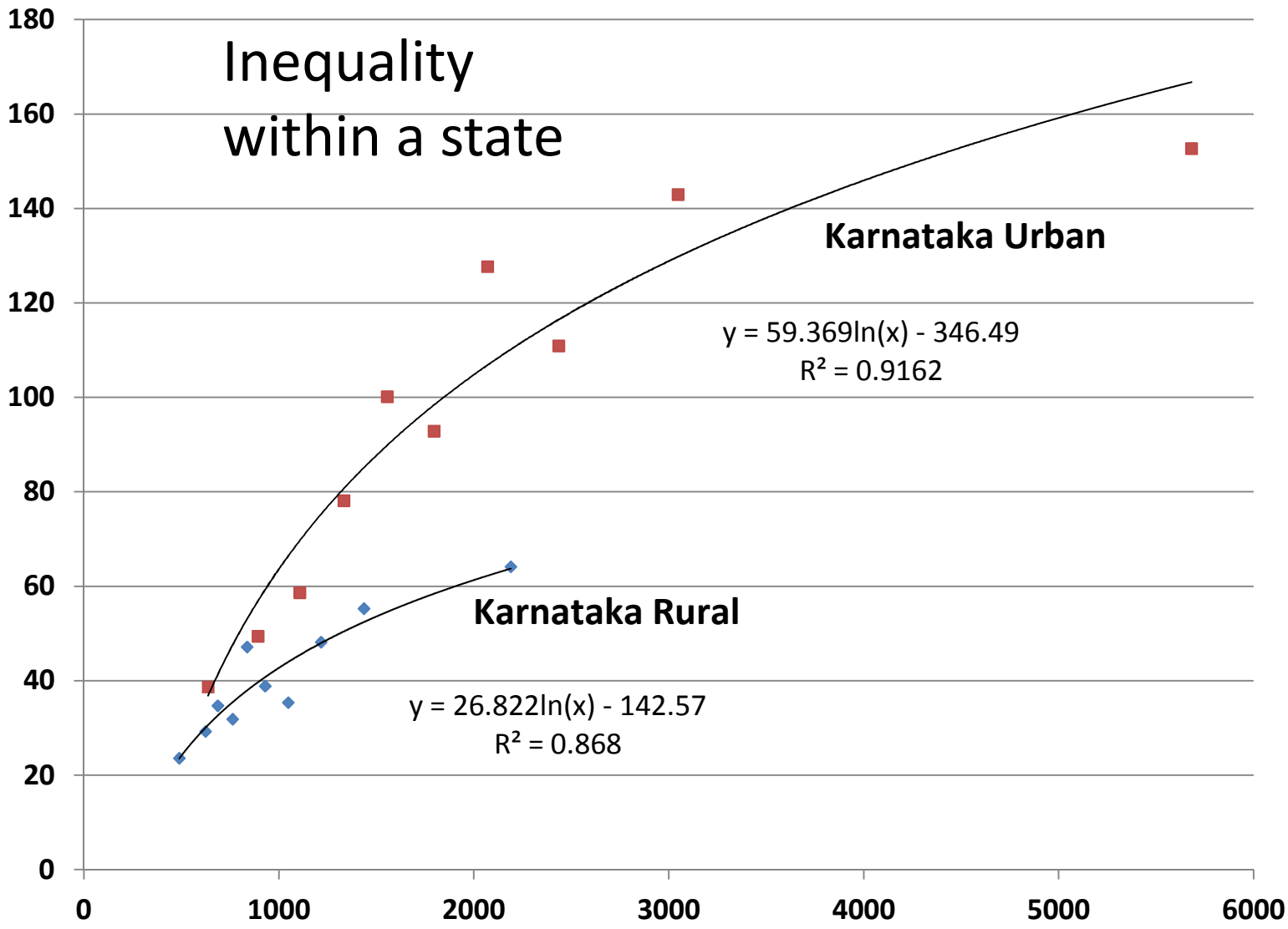


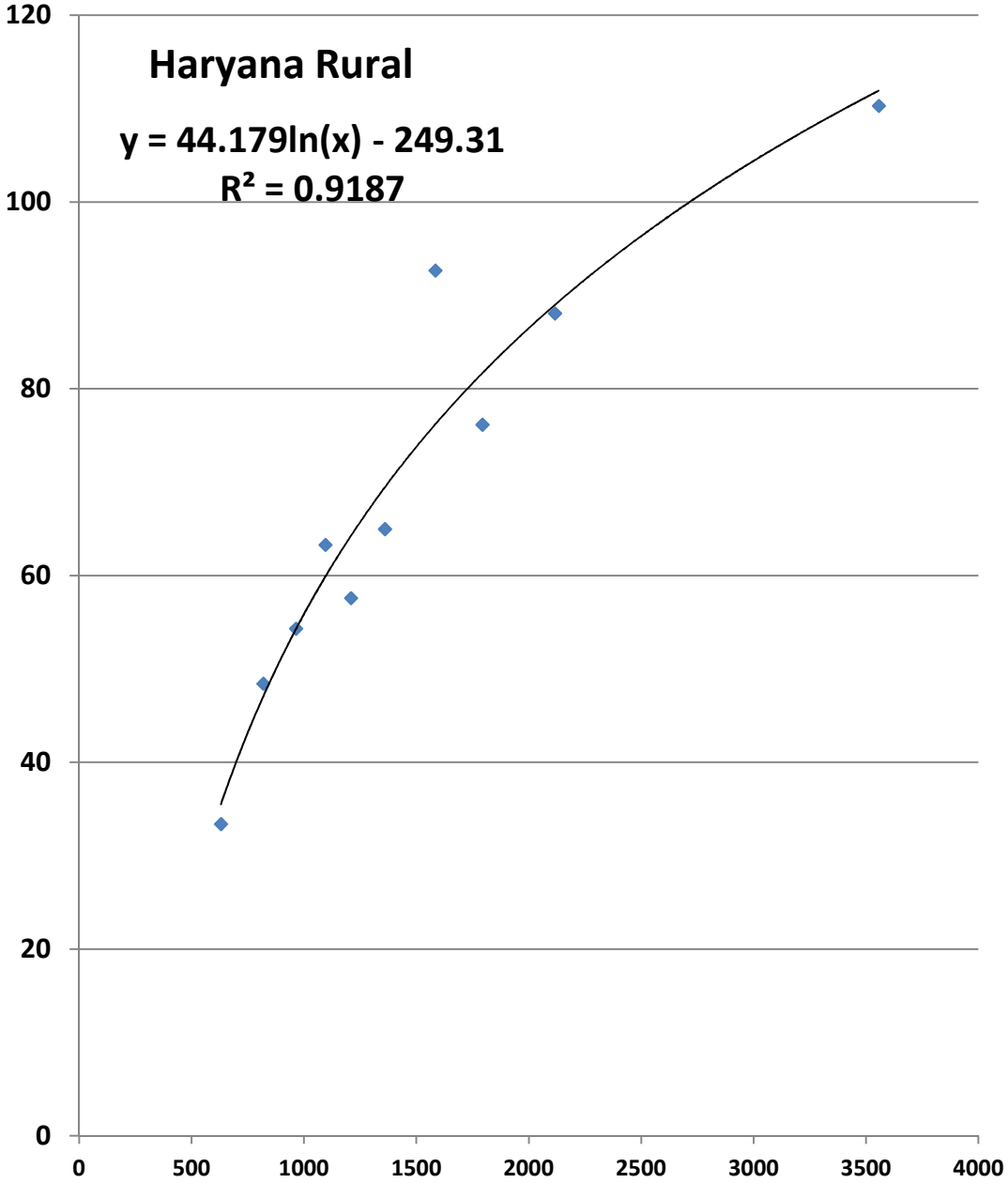


Energy consumption by MPCE deciles for Urban and Rural areas

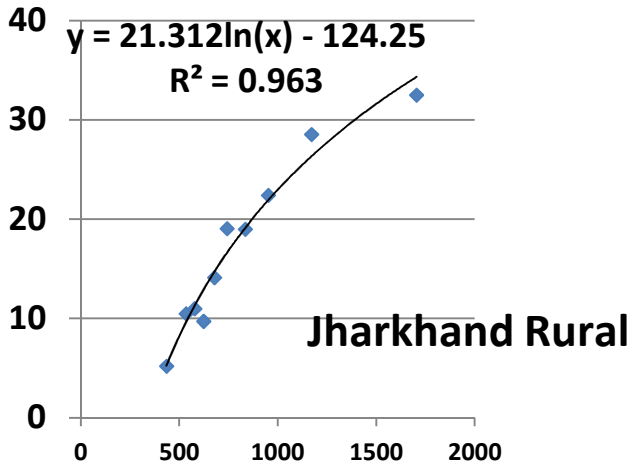
(NSSO 66th Round)


Energy consumption by MPCE deciles
India Urban
y = 85.739ln(x) - 522.17
R² = 0.9805
The India Bharat divide
India Rural
y = 37.508ln(x) - 217.33
R² = 0.9332
NSSO 66th Round
Units per Hh
MPCE
0
50
100
150
200
250
0
1000
2000
3000
4000
5000
6000
7000


Inequality
within a state
Karnataka Urban
y = 59.369ln(x) - 346.49
R² = 0.9162
Karnataka Rural
y = 26.822ln(x) - 142.57
R² = 0.868
180
160
140
120
100
80
60
40
20
0
0
1000
2000
3000
4000
5000
6000



Inequality Between states



We therefore need to focus on

i) Infrastructural issues of availability
ii) Governance issues of access and quality and
iii) Individual level issues of affordability and efficiency

We also need to acknowledge that

iv) economic poverty and energy poverty are not the same,
v) Nor are total energy and end use energy

Only then we will be able to assess the
‘Shape of the Animal’

There is a thus long and rich agenda before us.