

Indian INDCs
Energy Access, Co-benefits
and Climate Justice

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ON WAY TO PARIS, WE HAVE

- Bought ourselves ELBOW ROOM :
 - ✓ Emission Cushion,
 - ✓ Emission Intensity Cushion,
 - ✓ Financial caveat

- We promised :
 - ✓ A roll back,
 - ✓ A FFF target and
 - ✓ A Carbon -Sink

- Back home let us look at some facts which have a bearing on
 - Energy Access
 - Persistent inequalities
 - Co-benefit ideas

WHAT ABOUT THE FFF PLEDGE?

✓ **INDC Projections at 40% FFF:**

- Renewable 200-275 GW,
- Nuclear 63-17
- Hydro 67

India's renewable energy potential ,

✓ **Total installation potential : 575 GW**

- Solar thermal 125,
 - Solar PV 125,
 - Hydro 160 (148 Large, 15 Small)
 - Wind 130 (onshore and offshore 65 GW each)
 - Bio mass 23,
 - Tidal 8 GW
- (Source: Sukhatme et al)

✓ **Translates to about 1229 TWh Annual production**

- ❖ **BAU for CUF, for Cell efficiency, hydel technology No Game changers?**

✓ **RE Target for 2022: 175 GW** Do we need to front load RE
Given that the target appears achievable by 2030 ?

✓ This achievement will just amount to 5% reduction in emissions, and more importantly,

✓ Coal will continue to account for a substantial share of the power generation

✓ What kind of options exist for paying for this transition?

Our projections of 2.5 Trillion USD have a cushion. We must as such ask for technology and funds **for game changers e.g.**

✓ **Cells with efficiency of 28%,**

✓ **Storage technology,**

✓ **Generators in pen-stock**

✓ **Ultra low head turbines**

✓ **EE, smart grids and NEGAWATTS**

HOWEVER

- When we speak of the Energy Access, we need to grapple with
 - 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?

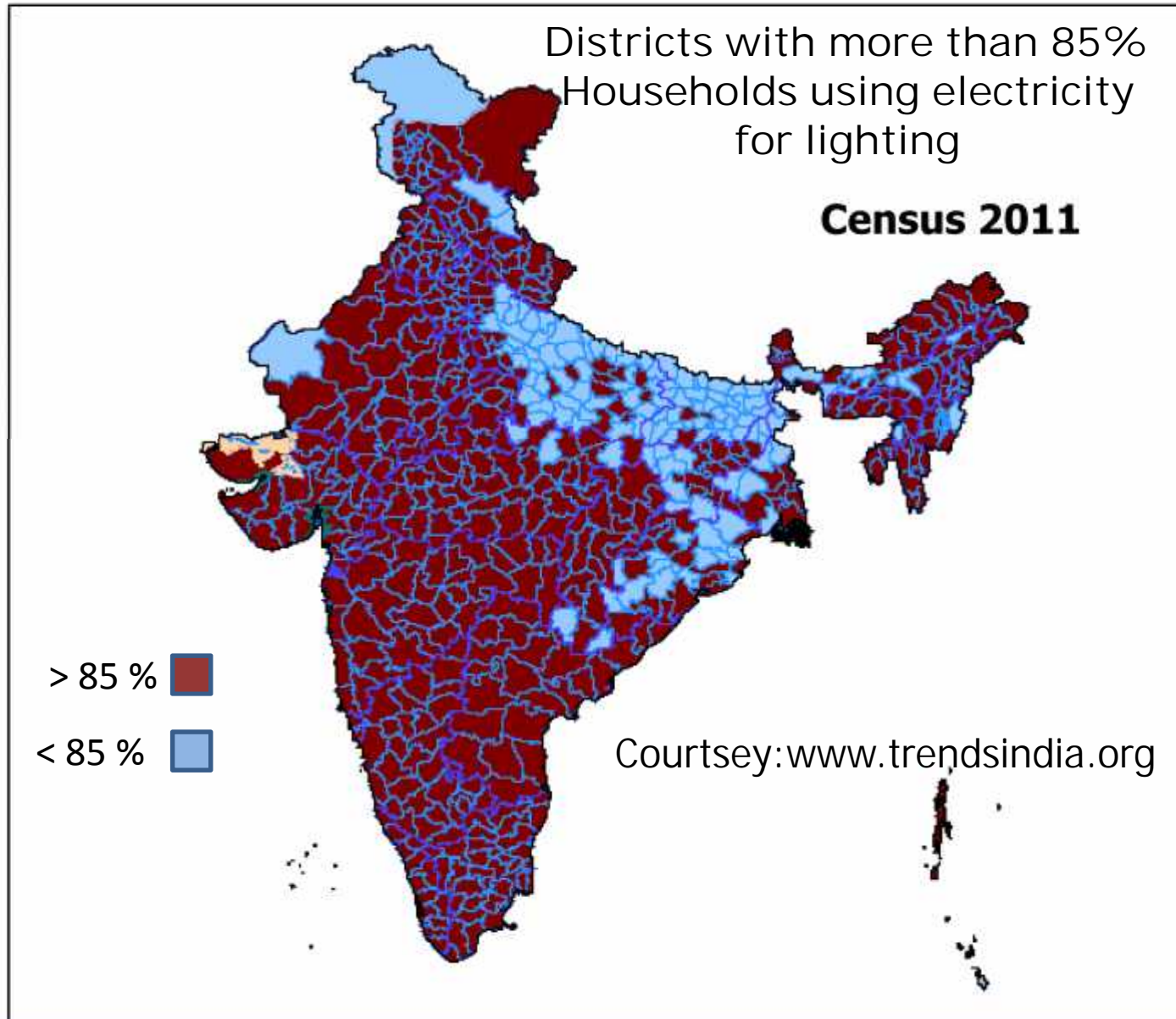
- In addition, there is the issue of inequalities in access:
 - Between India and Bharat.
 - Within India
 - Within Bharat

All of these have a bearing on well being, drudgery, exposure to emissions etc.

Let us look at the very basics first: Just access

Sources of Light

Use of Electricity in Urban Sector





Source of Light

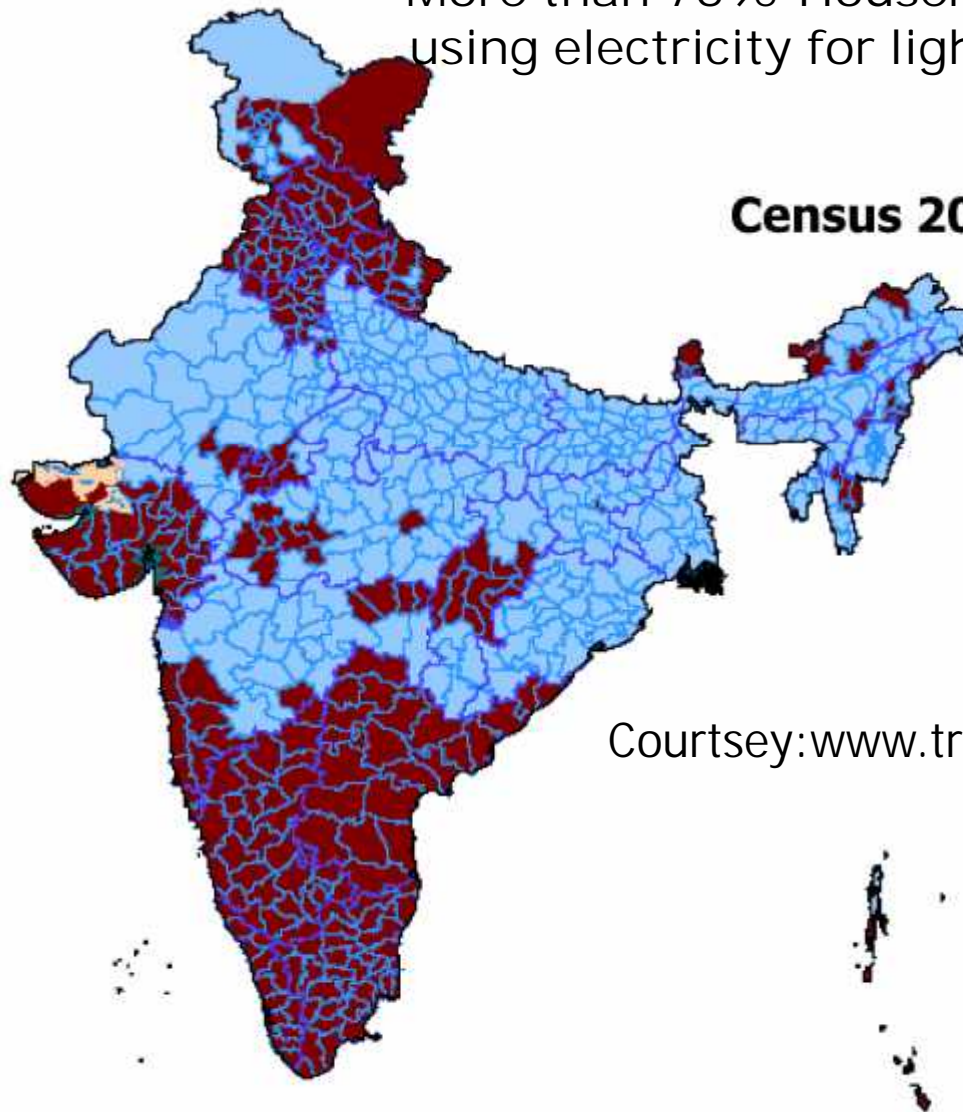
Use of Electricity in Rural Sector

More than 75% Households using electricity for lighting

Census 2011

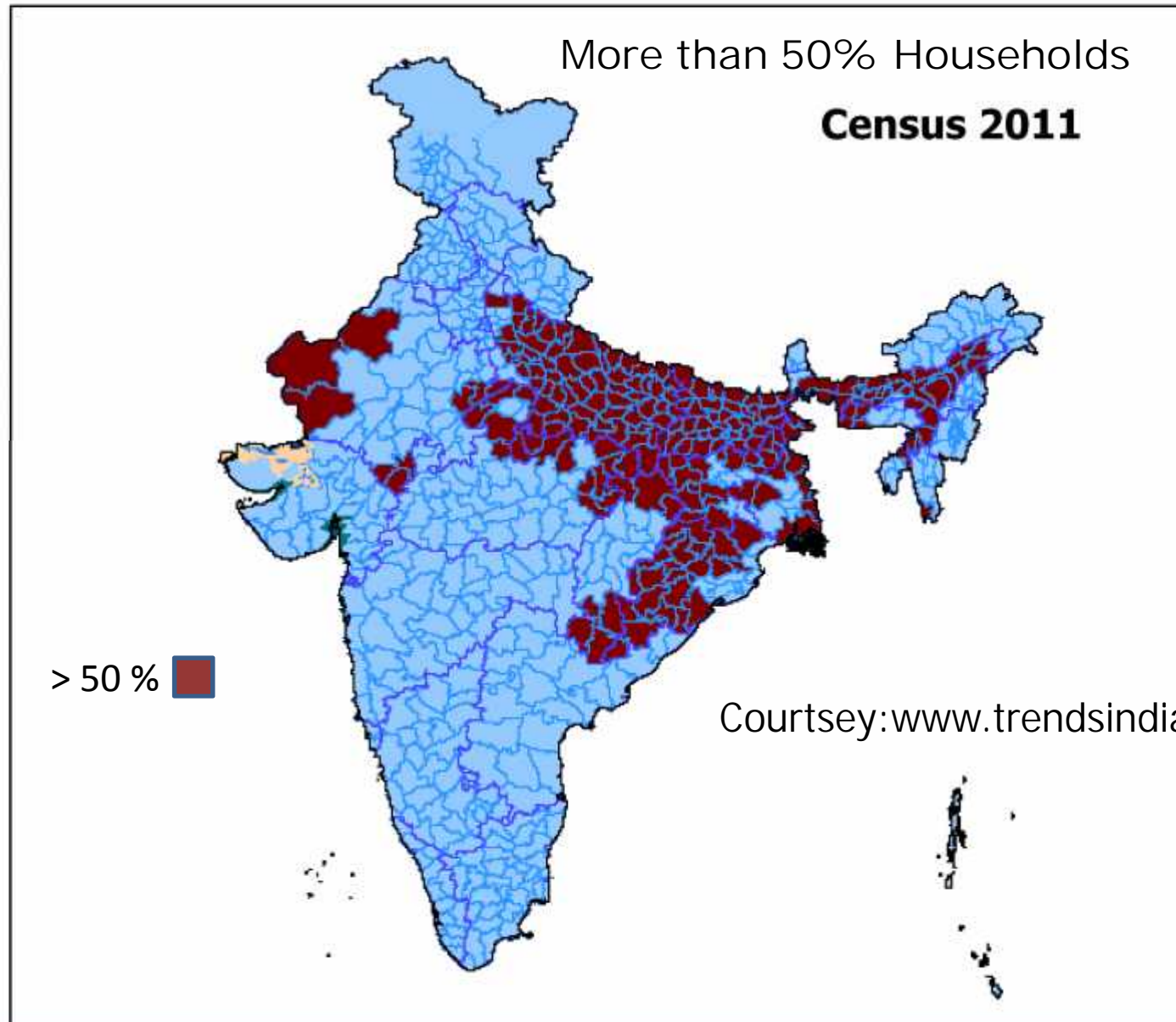
> 75 % 
< 75 % 

Courtesy: www.trendsindia.org

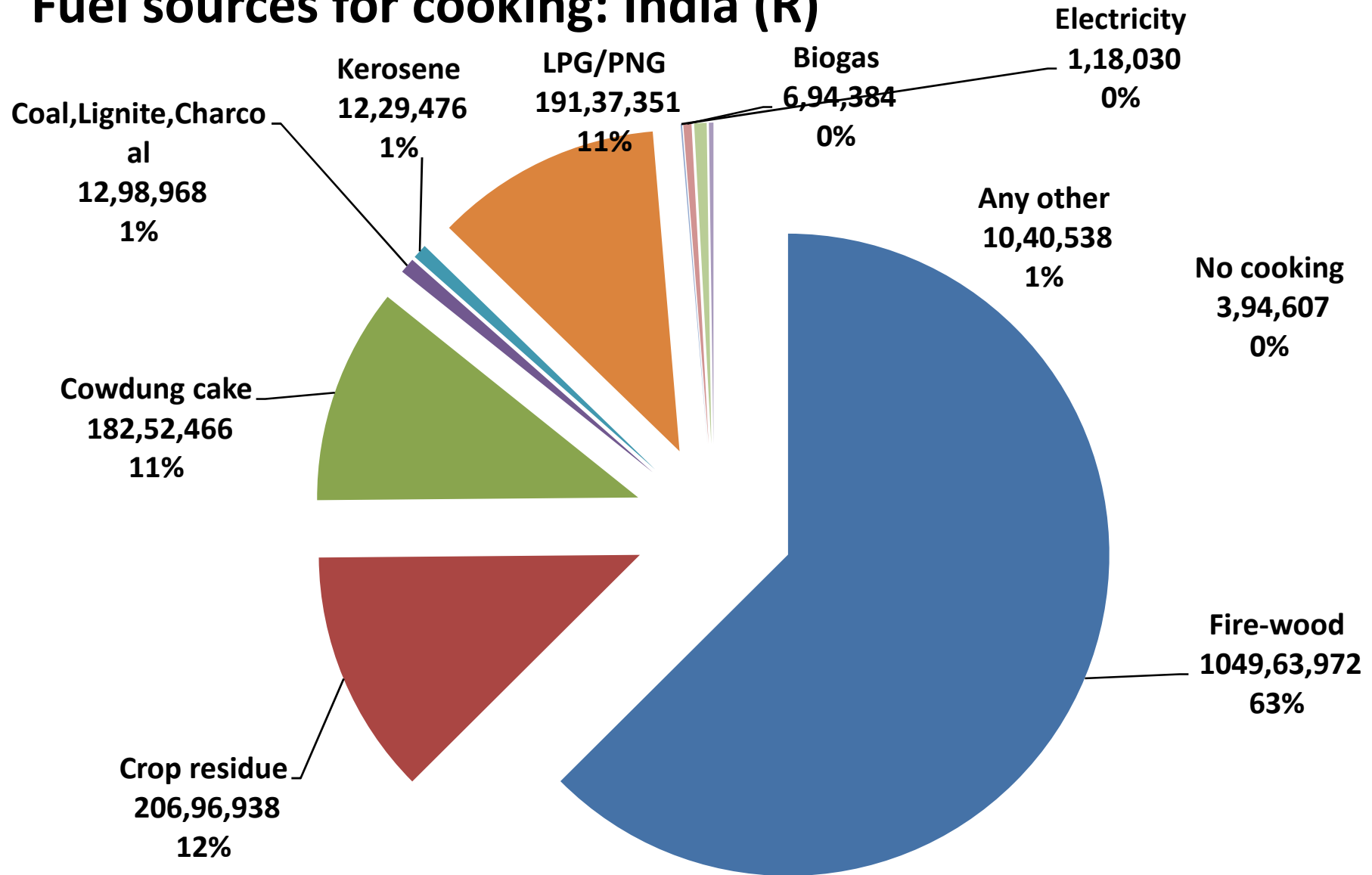


Source of Light

Use of 'Kerosene' in Rural Sector

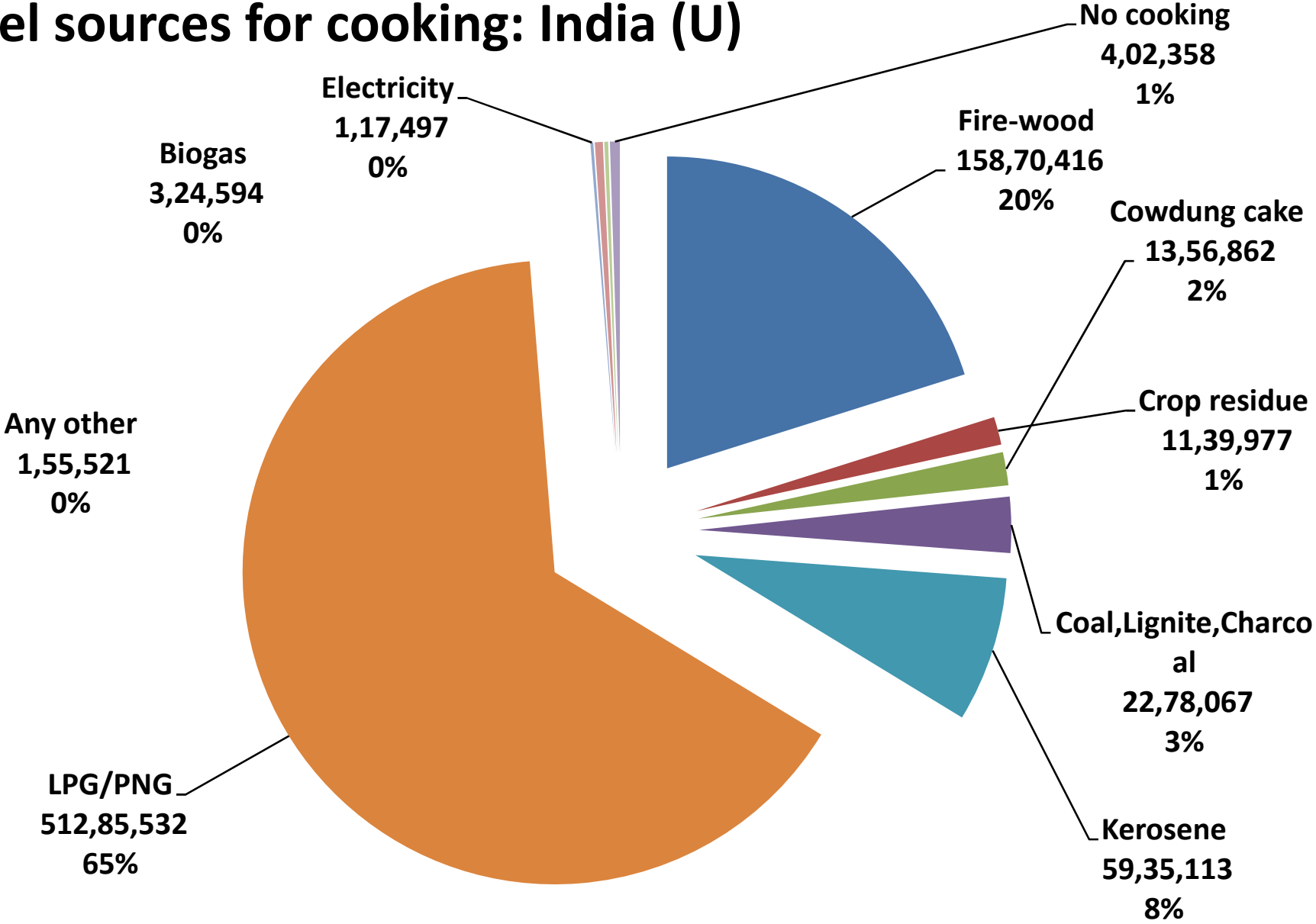


Fuel sources for cooking: India (R)



Courtesy: www.trendsindia.org

Fuel sources for cooking: India (U)

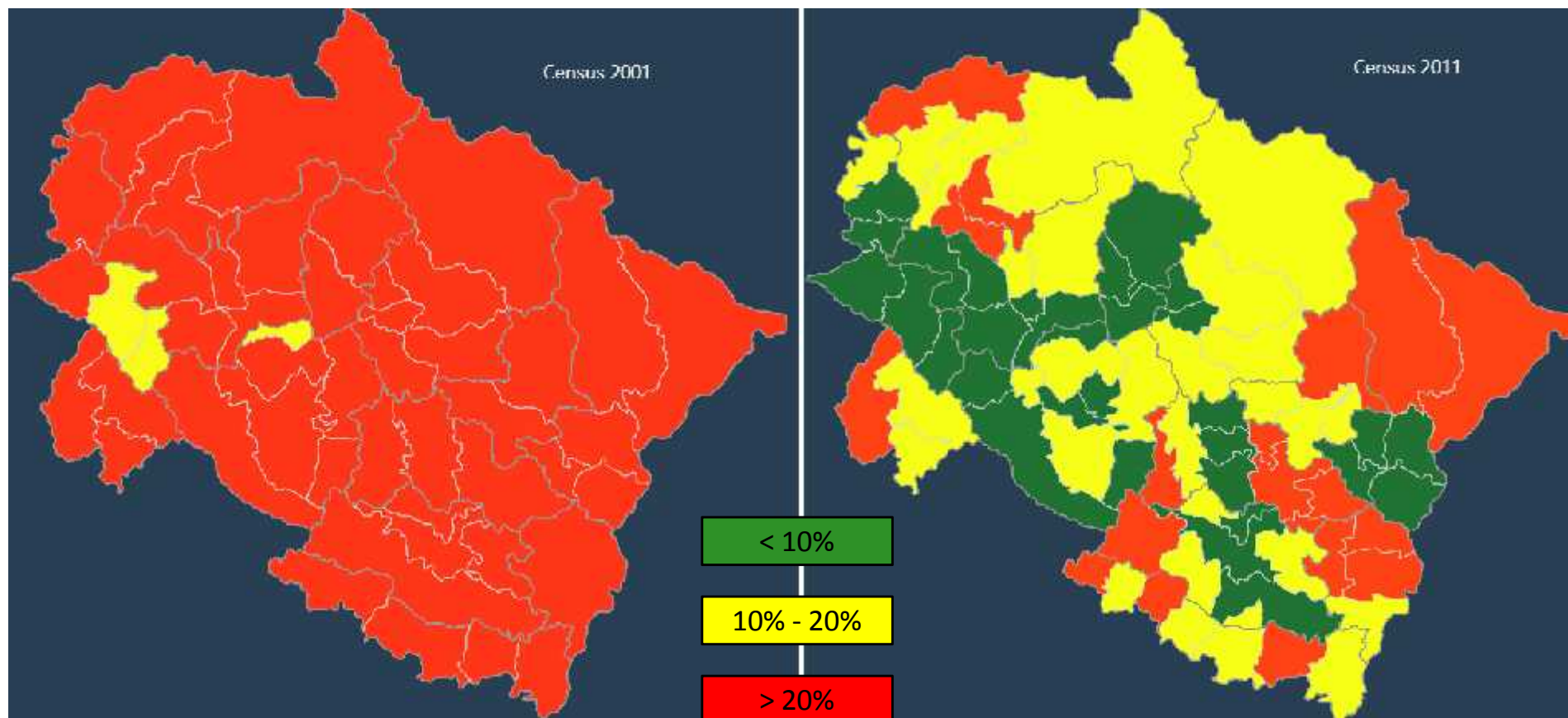


Courtesy: www.trendsindia.org

What changes have happened between 2001 and 2011?

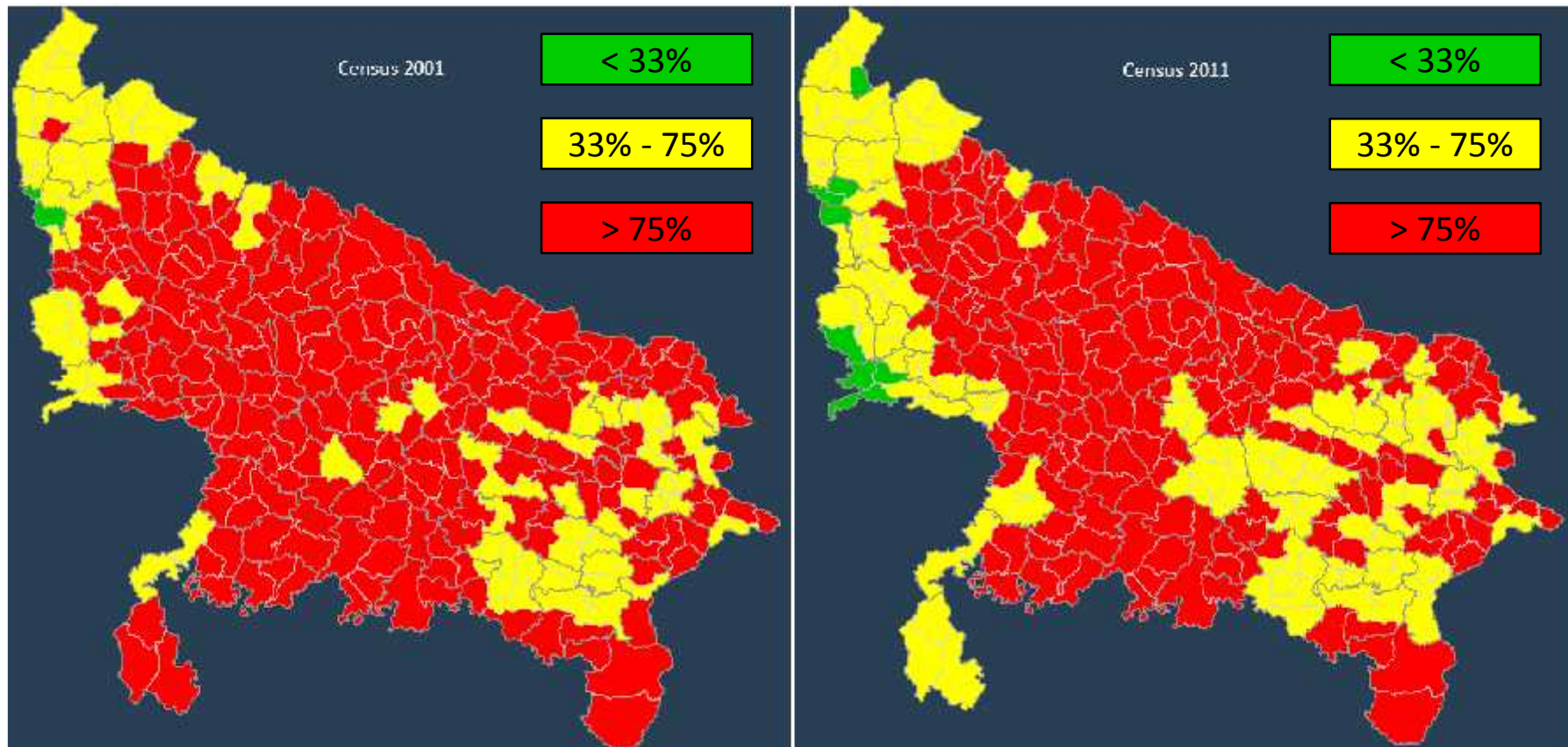
Encouraging in some places

Kerosene as Source of Light in Rural Uttarakhand



Courtesy: www.trendsindia.org

Discouraging in some places !



Kerosene as Source of Light in Rural Uttar Pradesh
(2001) (2011)

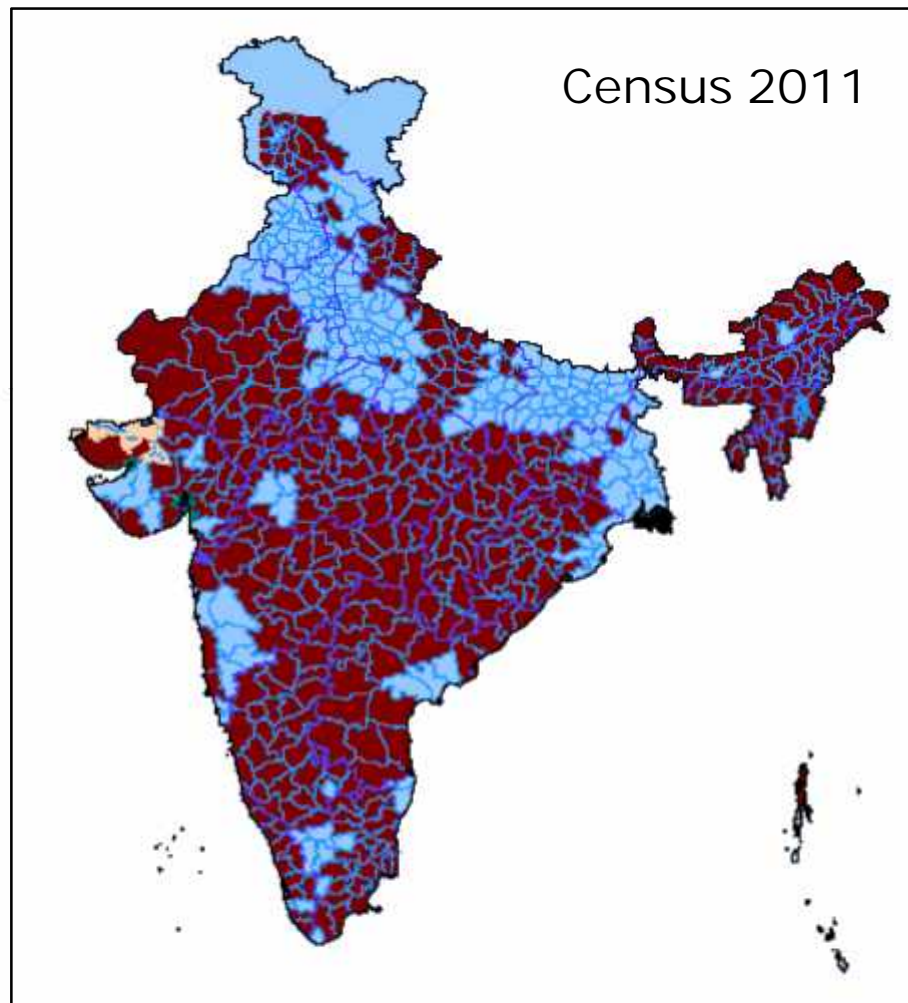
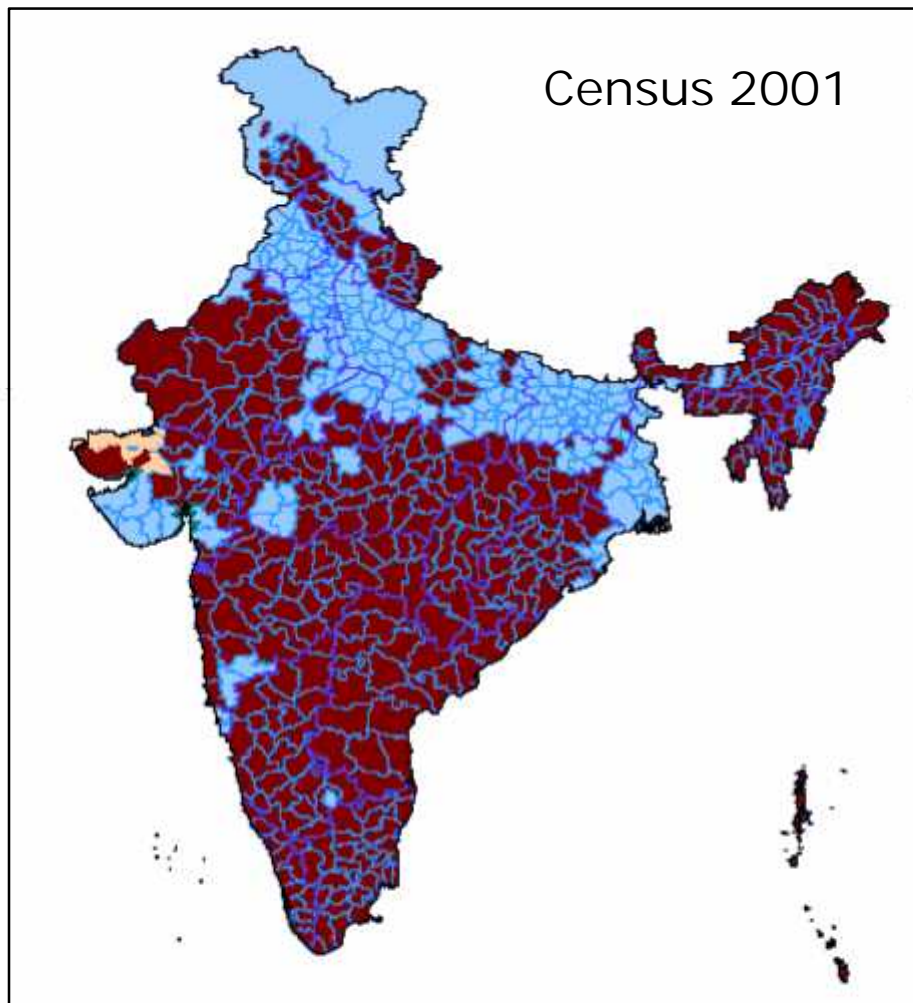
Courtesy: www.trendsindia.org

Not so encouraging in some cases

Use of Firewood in Rural sector

More than 62% households

More than 61% households



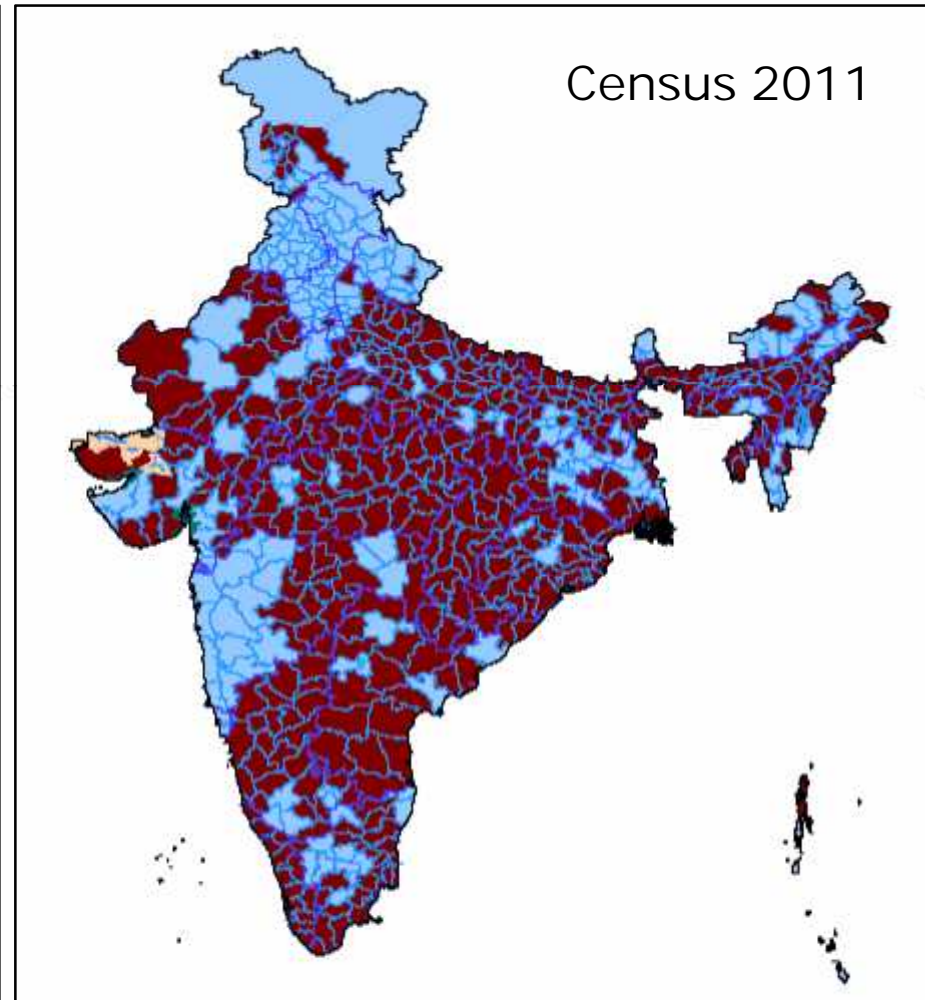
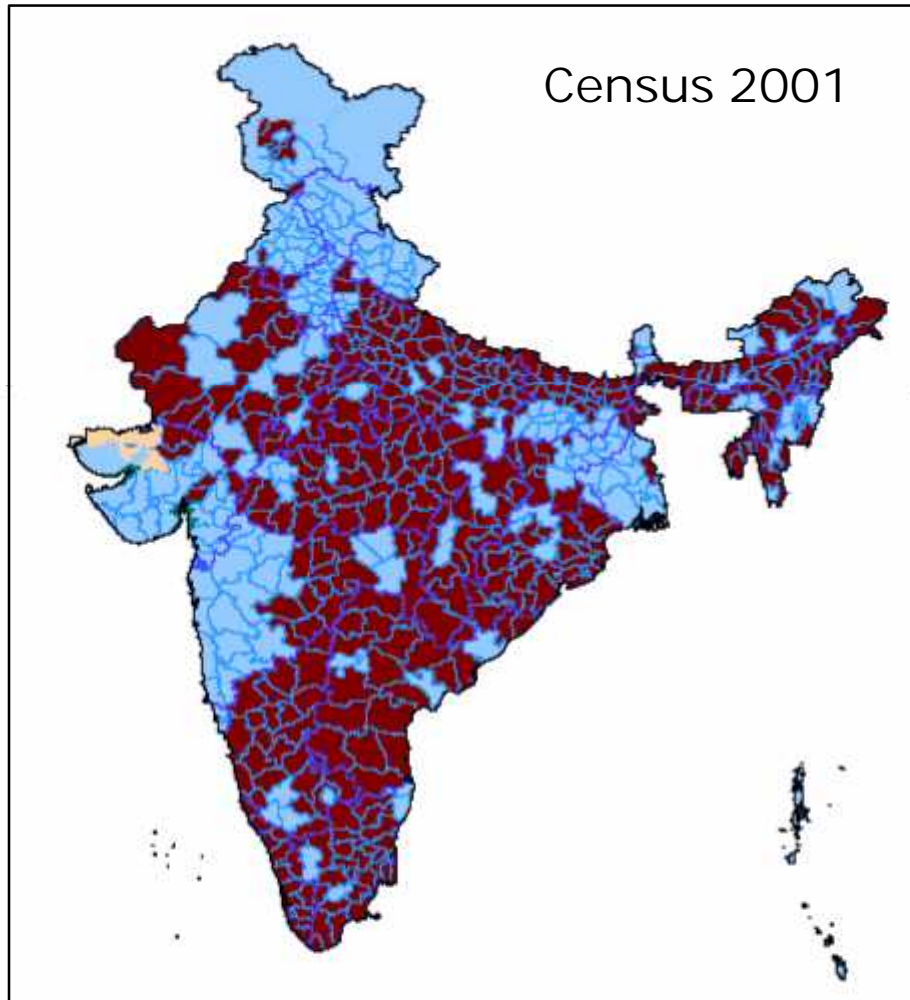
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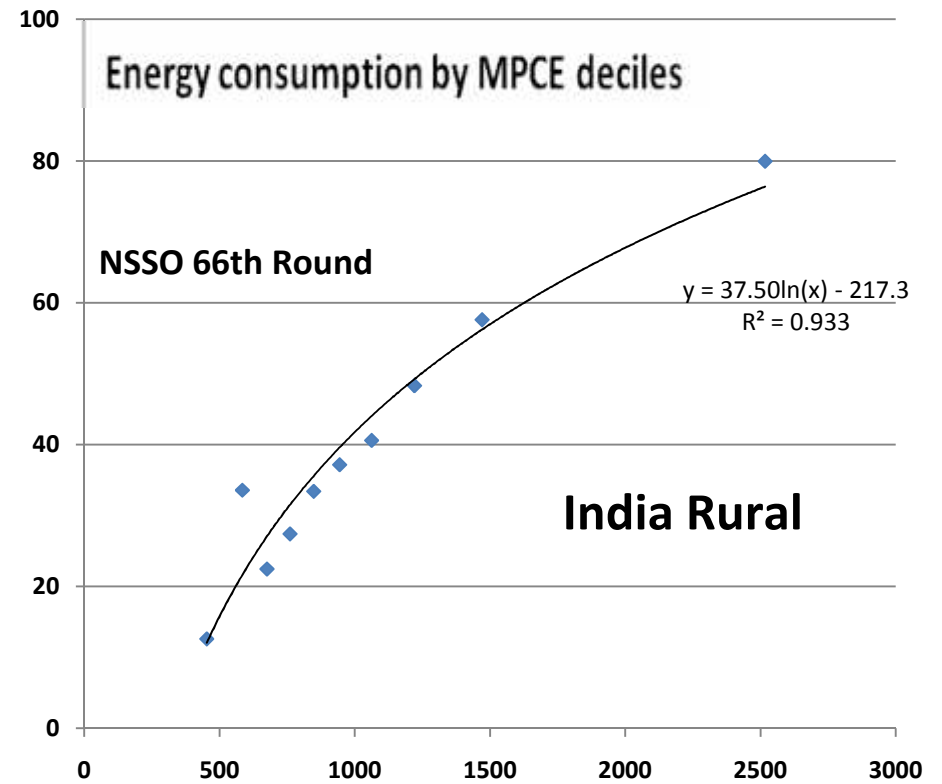
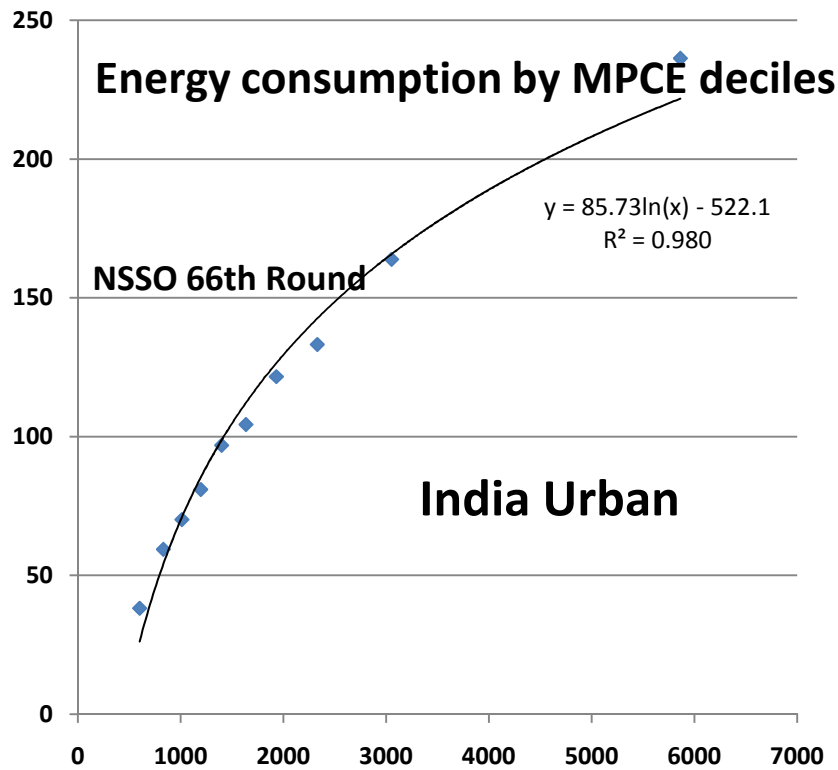
More than 25% households

More than 20% households



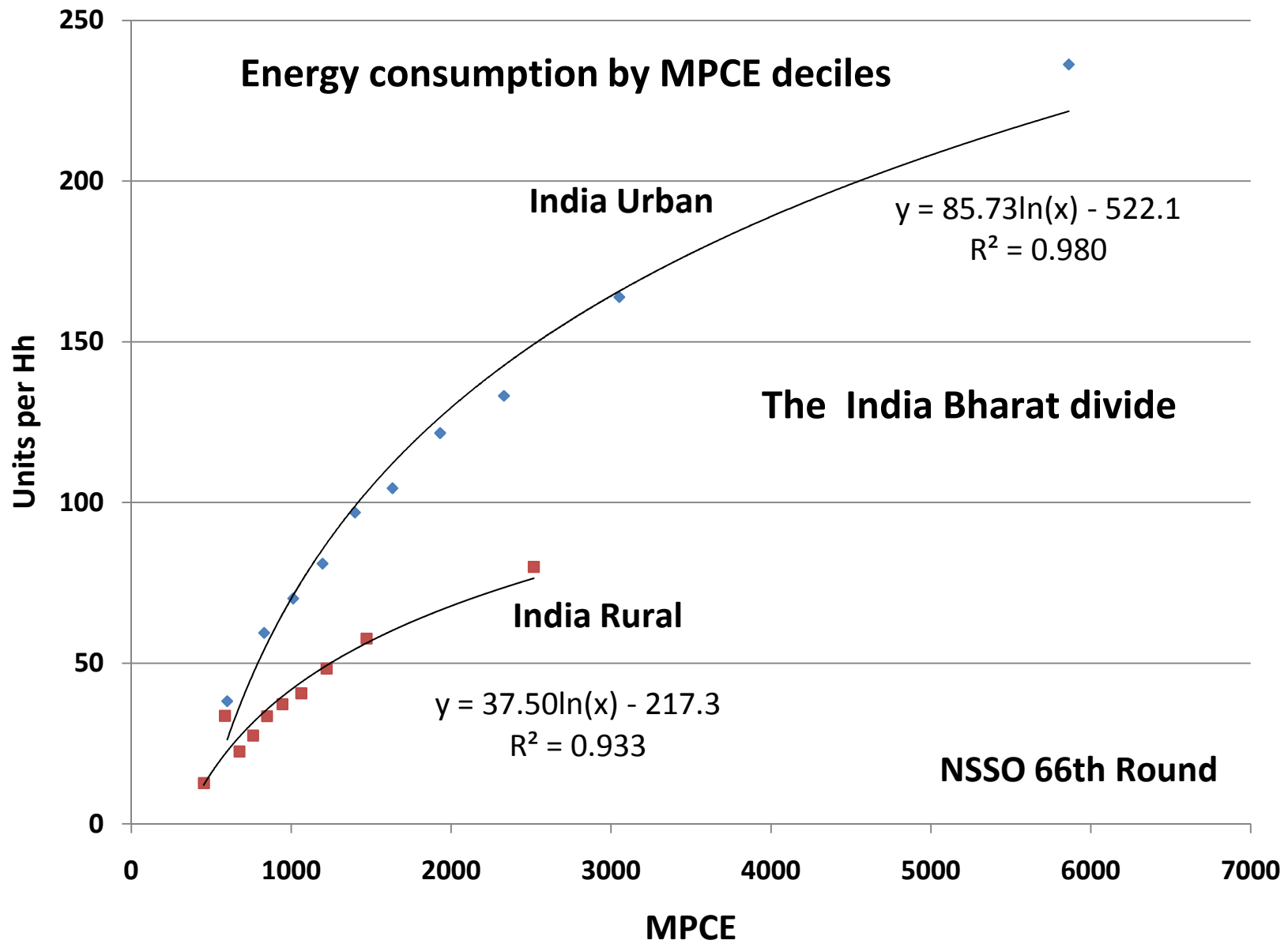
Courtesy: www.trendsindia.org

How Much ?

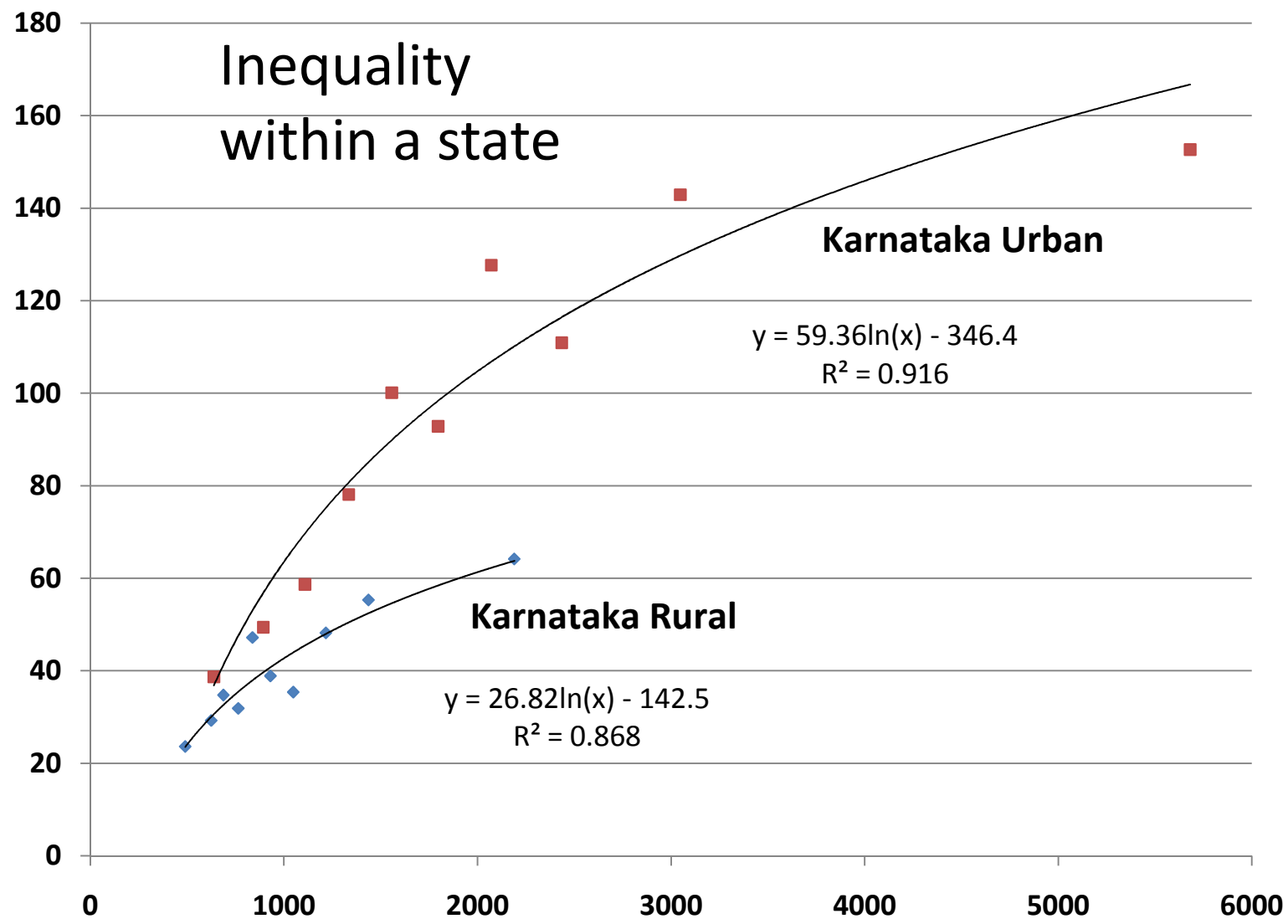


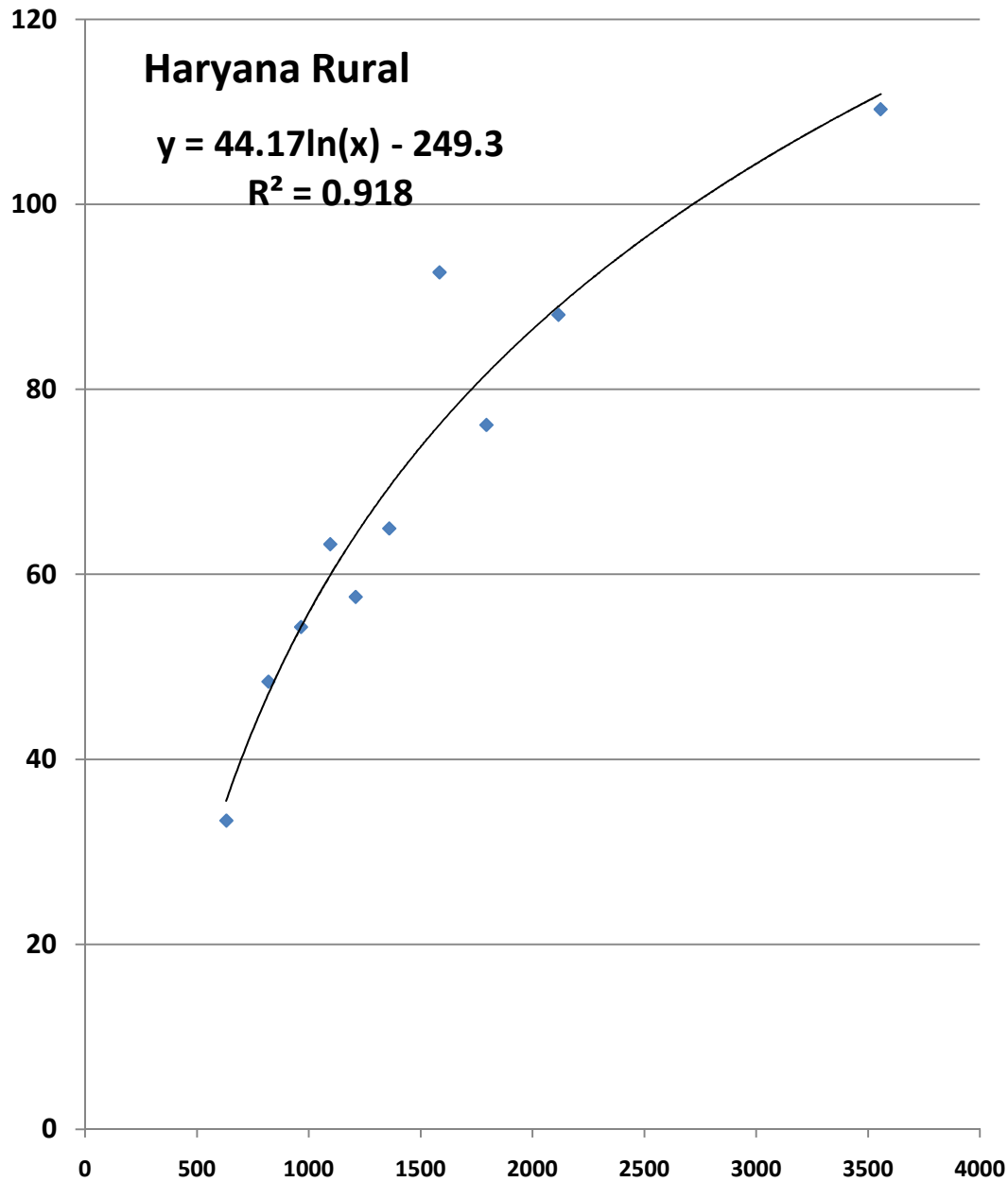
Energy consumption by MPCE deciles for Urban and Rural areas

(NSSO 66th Round)

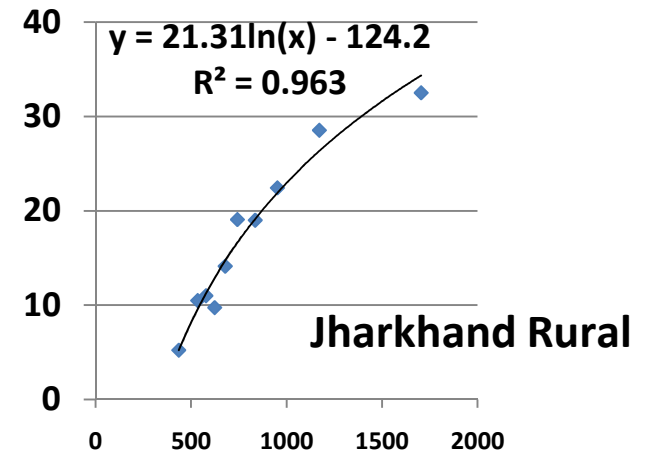


Inequality within a state





Inequality Between states



Coming to Co-benefits.....

We need to move away from the GW obsession in RE and look at other options where the co-benefit staring us in our face

- i) Solar home lighting: Kerosene Mukta Bharat
- ii) Bio – gas: Put on back burner: Needs a makeover
- iii) Solar steam:
- iv) Bio mass / bio fuels: The Cinderella
- v) Storage: The missing link

With apologies to Faiz Ahmed Faiz

***aur bhi gham hain zamaane meiN Gigawatt ke siwa
raahateiN aur bhi haiN faqat Grid ki raahat ke sivaa
mujh se jid kar ke Gigawatts, mere mehebuub, na maanNg***

Hence the prayer

TAMASO MA JYOTIR GAMAYA

(Both literally and metaphorically !)

THANK YOU