

# LPG in India: Past, Present, and Future of Ujjwala

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## Toxic Pollutants in Wood Smoke

Typical biomass cookstove releases

- 300-400 cigarettes per hour worth of smoke

- Not like smoking these cigarettes!

- But like in a very smoky pub with lots of smokers

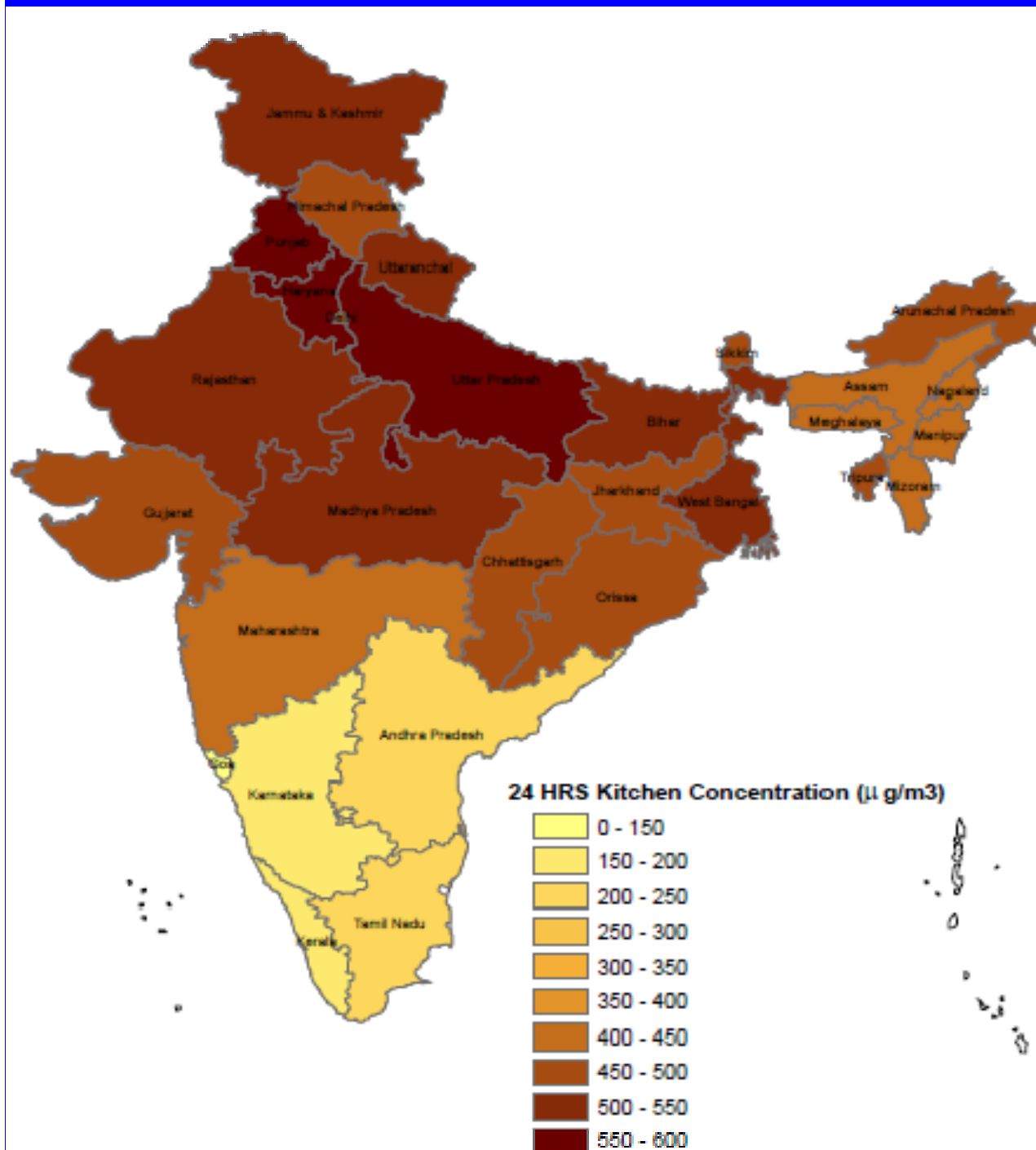
- Chlorinated organics such as *methylene chloride* and *dioxin*

Naehrer et al,  
*Tox*, 2007

First person in human history to  
have her exposure measured  
doing the oldest task in human history



Kheda District,  
Gujarat, 1981



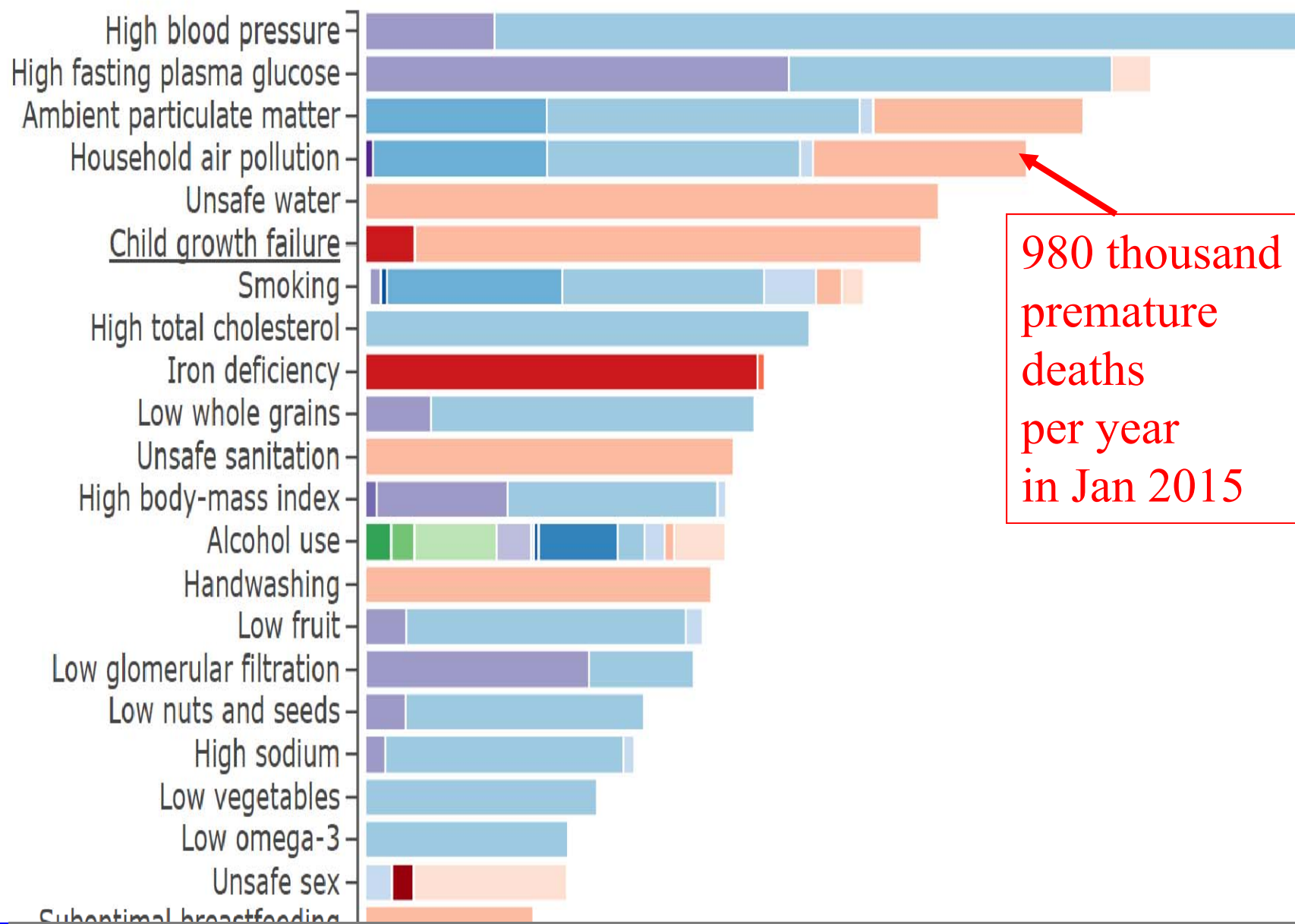
State-wise  
estimates of  
24-h kitchen  
concentrations  
of PM<sub>2.5</sub>  
in India

Solid-fuel using  
households

Balakrishnan et al.  
2013 (SRU group)

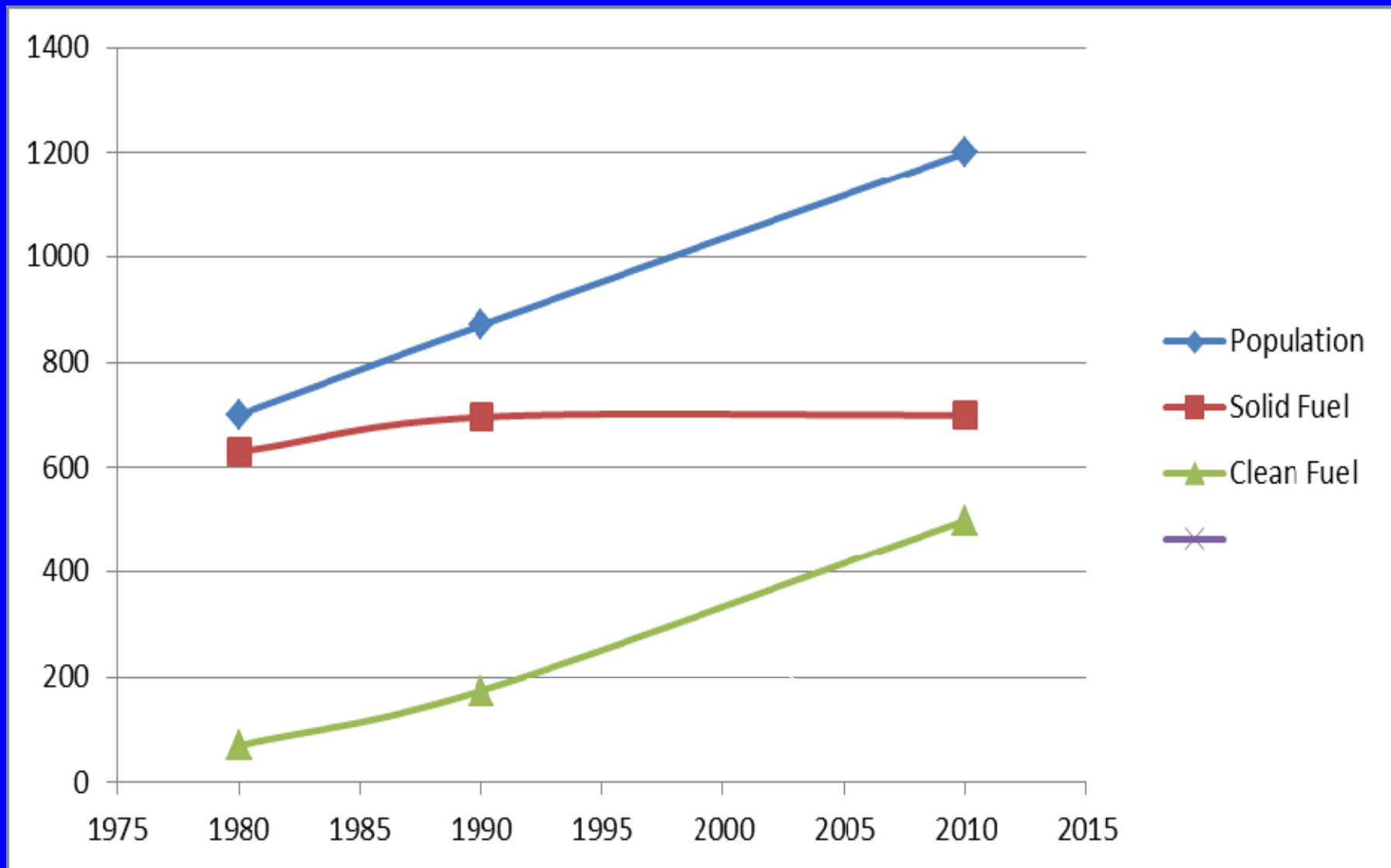
Back

## India, Both sexes, All ages, 2015



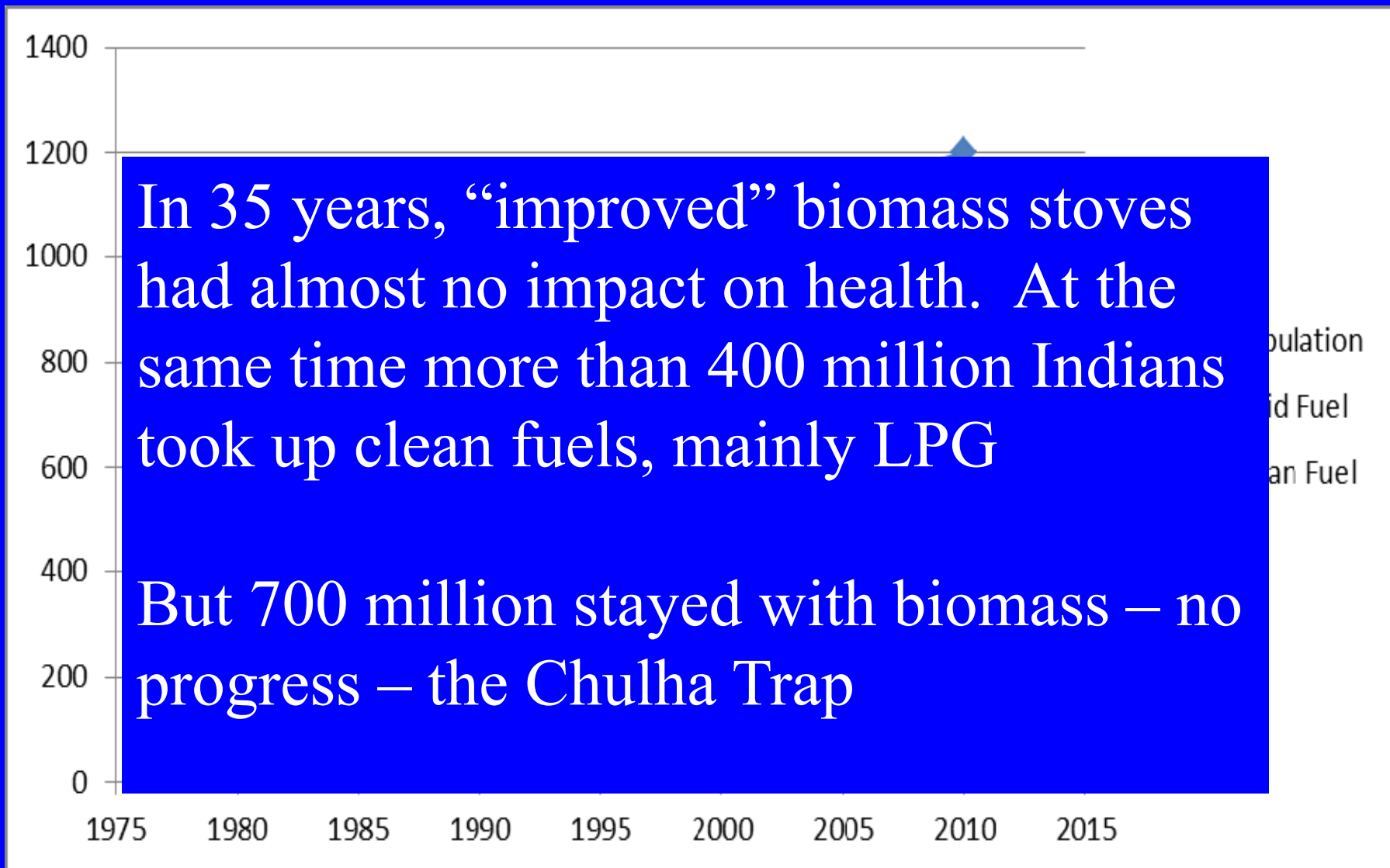
# India: What happened?

Millions



# India: What happened?

Millions





Associates



तेल उद्योग सुरक्षा निदेशाल  
OIL INDUSTRY SAFETY DIRECTORATE

&

Centre for Occupational and Environmental Health (MAMC)

# International Conference Occupational and Environmental Health

13-14 December 2013, New Delhi



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International Conference

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Occupational and  
Environmental Health





# Blaming the Oil/Gas Industry

- “Fracking”
- Tanker spills
- Off-shore platform failures
- Pipeline explosions
- Refinery fires
- Air pollution
- And, of course
- Climate change

# The industry needs to push back

- It produces the fuel that could save millions of lives every year.
- By definition!
- All among the poorest and most vulnerable populations in the world
- But to make this case, it needs to do better to make LPG available to poor populations

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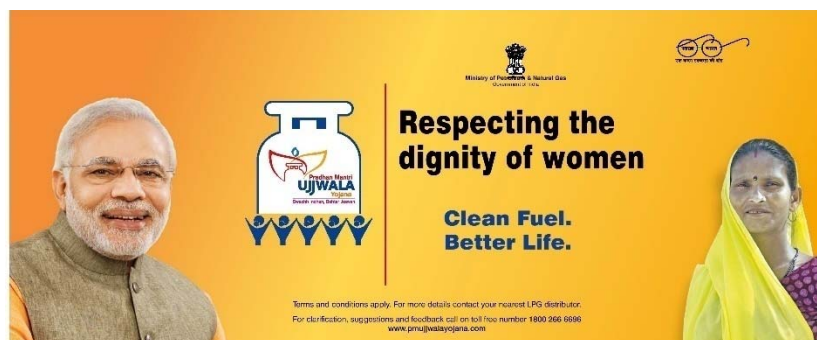
## Vivek Rae, Cont.

- Double LPG distributors for next year – 10 million people covered!
- Called a meeting of all the Chairs and heads of LPG for the 3 major oil companies to have them design a national plan under guidance of the Ministry of Petroleum in Feb 2014
- Modi, elected in May 2014, but did not stop this initiative --- expanded it!

# How did it work?

- People need to pay their own “connection” cost ~\$30 for deposit on first cylinder, etc.
- Price of LPG to consumer set at 450 INR (~7 US) per refill (14 kg)
- If international market price is 600 INR, 150 INR is paid by government
- If price goes up or down, government adjusts its contribution – people pay no more
- Everyone gets this subsidy





## Expanded LPG Coverage Starting Jan 2015

# Pahal

- Direct deposit of refill subsidy into electronic bank accounts
- All LPG sold at market prices
- Much less leakage to other sectors
- Largest bank transfer to a population in human history – Guinness Book of Records

## 'Give It Up' – Why?



- LPG being a highly subsidized commodity in India with subsidy amounting to 6 billion USD during 2013-14.
- This subsidy could be used for development purposes benefitting the nation.
- LPG consumers who can afford to pay the market price for their LPG supply to be a part of this nation building exercise by giving up LPG subsidy to benefit those who can't afford.



Feel the Joy of Giving

: Initiated by



**Ministry of Petroleum & Natural Gas**  
Government of India



MyLPG website: Feb 24, 2016

☰ Amitabh Bachchan Messag...





# Give It Up campaign

- Middle class gives up their LPG subsidies
- Health is the message – “make a poor man’s kitchen clean”
- Extensive social marketing
  - Modi and other celebrities in speeches, media ads, bill boards, etc
  - SMS messages
  - Fairs, athletic events, posters, skits, etc
  - Website linking those giving up to those receiving: middle class to poor

Search By: ☒ Giveltup Champion ☐ Beneficiary

Search Name:

LPG Id:

SEARCH

SHOW ALL

#Giveltup CHAMPION	BENEFICIARY
MUNIAMMAL	MISHRI DEVI GURJAR
J.RAY CHOUDHARY	BALE . MALLAIAH
KALAISELVI. V. MRS.	SHIV . KUMAR
SHREE RAJA GOVIND SINGH KHANDELA	RIYAJ . AHMAD
MOHD.SHAHID	A. RASHID S/O KARIMULLA
SAFIQ	EESVAR . SINGH
MAHENDRA PRASAD TRIPATHI	VIJENDRA . JATAV

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## 'Give It Up' – Success Story



**10.5 million households**  
as of June 2017 and still counting

**In financial terms, about equal to 0.5  
billion USD/year internal  
“foreign” aid – middle class to poor  
(half as much net real foreign aid)**

## Budget Speech, Feb 2016

- *“In our country, cooking gas cylinders were considered an upper middle class luxury. Gradually it spread to the middle class. But the poor do not have access to cooking gas. Women of India have faced the curse of smoke during the process of cooking. According to experts having an open fire in the kitchen is like burning 400 cigarettes an hour. The time has come to remedy this situation.”*

•

- *“We have decided to embark upon on a massive mission to provide LPG connection in the name of women members of poor households.... The Scheme will be continued for at least two more years to cover a total of 5 crore (50 million) BPL (below-poverty-line) households.”*



- *“This measure will empower women and protect their health. It will reduce drudgery and the time spent on cooking. It will also provide employment for rural youth in the supply chain of cooking gas.”*



# Pradhan Mantri Ujjwala Yojana



## Ujjwala Program



Ministry of Petroleum & Natural Gas  
Government of India



## Respecting the dignity of women

### Clean Fuel. Better Life.



Terms and conditions apply. For more details contact your nearest LPG distributor.

For clarification, suggestions and feedback call on toll free number 1800 266 6696  
[www.pmujiwalayojana.com](http://www.pmujiwalayojana.com)



Suresh Nair, GM Sales (LPG) BPCL



# Objectives of Ujjwala Scheme

1. Empowering women and protecting their health.
2. Reducing the serious health hazards associated with cooking based on biomass fuel.
3. Reducing the number of deaths in India due to unclean cooking fuel.
4. Preventing young children from significant number of acute respiratory illnesses caused due to indoor air pollution by burning the biomass fuel.

# Ujjwala

- Adding 10,000 distributors to the 18,500 now existing. Now 5700 in rural areas (only ~800 added the first year)
- National no fault insurance scheme for accidents – 6 lakh per accident – toll-free national number to call
- 1.2 billion USD earmarked for one-time connection costs
- All transactions only to women's accounts

## Ujjwala, cont

- Goal is 50 million new connections by 2019
- Minus those double connections deleted from PAHAL scheme: – 34 million
- Plus those from Give it Up : 10+ million
- Plus from normal growth in middle class
  - Which was 26 million from Jan 2015 to April 2017
- Currently nearly 200 mil active accounts
- >70% of country already



## In 2019

- 60 million new BPL connections to be added since 2015
- Plus 50+ million in middle class
- Perhaps >80% of country to be covered
- Now starting to design program for moving to >90%

# Why India?

- Vast infrastructure already in place: pipelines, 189 bottling plants, cylinder manufacturing, port facilities, 18,500 distributors, etc.
- Largest Indian company and two other large companies do the marketing: Private sector but government owned and thus can be focused on social programs
- Massive commitment from top to bottom: PM to distributor

# Modi speech – June 24, 2017

- **There were 3 crore 'ghost clients' with gas subsidies under their names. Now those have disappeared and those who really needed it have received a Connection**
- **Now anyone can transfer their gas subsidy to those who are in need of them.**
- **5 crore (50 million) rural families will receive a gas connection**
- **When I think of a developed India, I think of a healthy India, particularly the good health of the women and children of our nation**

# JAM is important

- Jan Haar: electronic bank accounts
- Aadhaar cards: biometric ID card system
- Mobile phones: and rapid growth of smart phones
- Cashless transactions now possible for LPG purchase – six separate systems currently
- Leading national effort

## Of course

- Just providing affordable access to LPG or other clean fuel does not mean people instantly switch 100%
- However, since 60% of world uses gas and/or electricity it argues strongly that the others will eventually follow.
- Is clearly what is needed in long term – why not sooner rather than later?

## What else?

- India moving directly to eliminate kerosene subsidies – already several states have done so. LPG is helping. Many thousand crore saved
- India is pushing a large-scale introduction of piped natural gas (PNG) in cities – hopes to reach 100 million people by early 2020s
- Displaces LPG and makes it available to others down the energy/income ladder

# Subsidy or ?

- Health sector does not refer to programs to vaccinate or provide maternal care to the poor as “subsidies” but rather
- **Social investments**
- In order for public support of clean fuels to be termed social investments, they need to be far better targeted than in the past.



# New Directions

- Work to help target subsidies even better
  - Embrace modern IT to do so
  - JAM: bank accounts, ID card, mobile phone
- Work with others to explore entirely different distribution modes
  - Example being explored: women's groups
  - Safety must be maintained

## In essence, India

- Has found ways to provide LPG access to hundreds of millions now using solid fuels
- We know, however, that initially people tend to continue to use biomass fuel as well, reducing the health benefit of LPG use
- How can we accelerate the natural transition to nearly complete usage?

# Promoting Usage

- Is a common requirement for household health interventions, however
- Just providing access to latrines, condoms, low salt foods, bednets, institutional delivery facilities, is not enough
- Need to encourage their use to obtain the health benefits

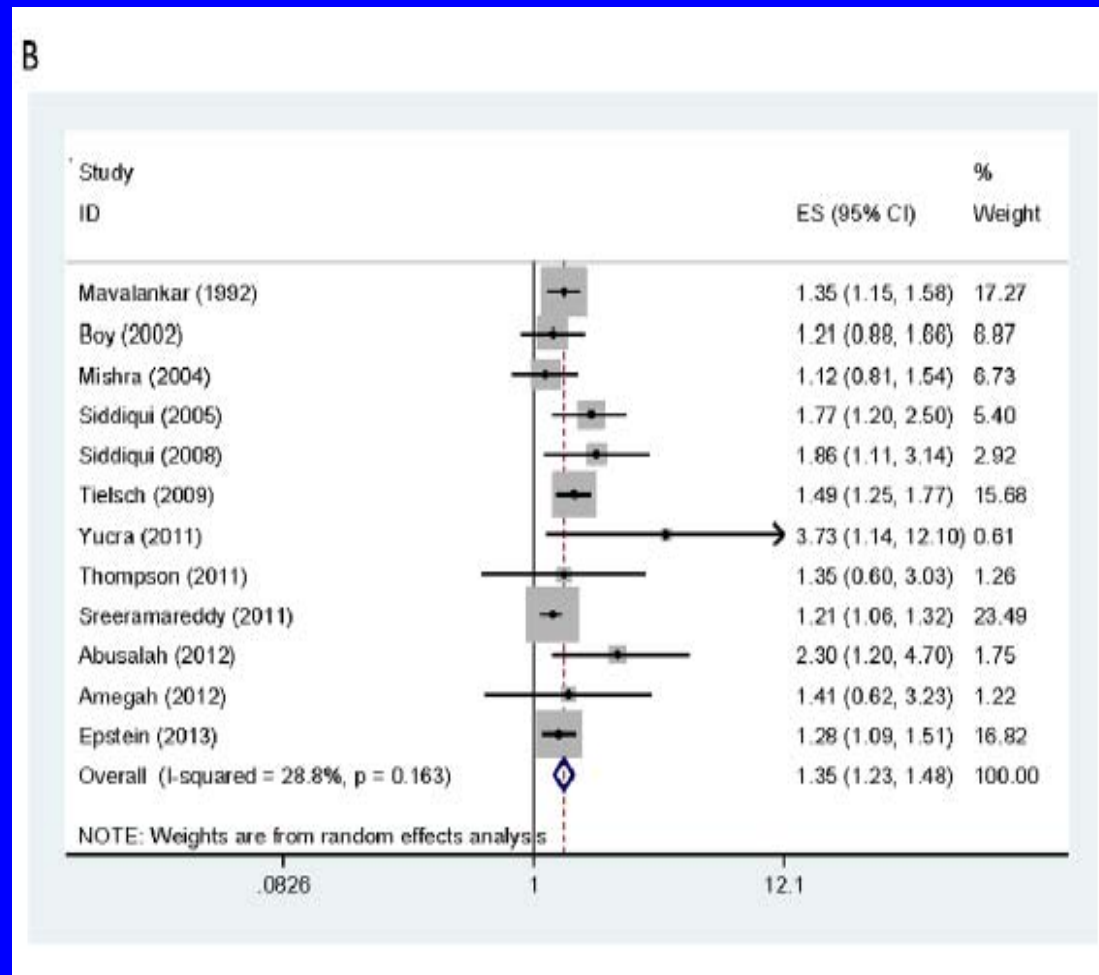
# 1. How best to encourage usage?

- Choose an already identified vulnerable population that is particularly open to behavioral change
- Pregnant women in biomass-using households: 15 million per year

# Low Birthweight (< 2,500 grams)

## 12 studies – half in South Asia

Cookfire smoke  
associated with  
a 35% increase  
in low birthweight



# Low Birthweight

- Low birthweight associated with a range of problems including
  - Infant mortality
  - Low cognitive function
  - Adult chronic disease risks
- According to UNICEF, India has world's third highest rate – 27% (after Pakistan and Yemen)

# What benefits are now available to poor pregnant women?

- Conditional cash transfer (CCT) is a well-developed way to encourage healthy behaviors
- India has a CCT for pregnant women operated via rural health system, including ASHAs – 2000 Rs.
- Now (Dec 31, 2016) 6000 Rs./pregnancy
- Delivered through electronic bank accounts to women alone



# Ujjwala-Mamta Initiative

## “Bright Motherhood”

- Provide full refund of LPG to all pregnant women using biomass fuels - ~ 15 million/year.
- Use ASHA workers as primary contact plus coordination with local LPG distributors.
- Use existing electronic bank accounts of the women to facilitate payments.
- Cost ~2000 (\$30) Rs per pregnancy, a third of current CCT payments
- Engender a lifetime behavioral change to LPG

# The LPG and Health Sectors

- Each has a large cadre of workers in the field close to households
  - 6000 LPG distributors, soon to be 12,000, each with 30-40 workers – about half a million
  - >900,000 local health workers
- Can do more together to promote healthy kitchens than either can do separately

## 2. Further revision of subsidies

# Promoting Clean and Affordable Cooking Smarter Subsidies for LPG

ALOK TRIPATHI, AMBUJ D SAGAR, KIRK R SMITH

**Table 1: Monthly Mean Household Expenditure on LPG**

Decile of Expenditure	Monthly Mean Household Expenditure (MMHE)₹		Percentage of MMHE Required for LPG		Requisite Subsidy (Rs/kg) to Keep Fuel Costs <5% of MMHE		Requisite Subsidy (Rs/kg) to Keep Fuel Costs <10% of MMHE	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
0–10	2,909	3,702*	19.1	15.0	51.7	46.7	33.3	23.3
10–20	3,838	5,143*	14.5	10.8	45.8	37.6	21.6	5.1
20–30	4,432	6,268	12.5	8.9	42.1	30.5	14.1	NS
30–40	4,987	7,474	11.1	7.4	38.6	22.9	7.1	NS
40–50	5,566	8,683	10.0	6.4	34.9	15.3	NS	NS
50–60	6,204	10,030	8.9	5.5	30.9	6.8	NS	NS
60–70	6,991	11,721	7.9	4.7	25.9	NS	NS	NS
70–80	8,062	14,089	6.9	3.9	19.2	NS	NS	NS
80–90	9,837	17,906	5.6	3.1	8.0	NS	NS	NS
90–100	17,242	35,953	3.2	1.5	NS	NS	NS	NS

# New Directions, cont.

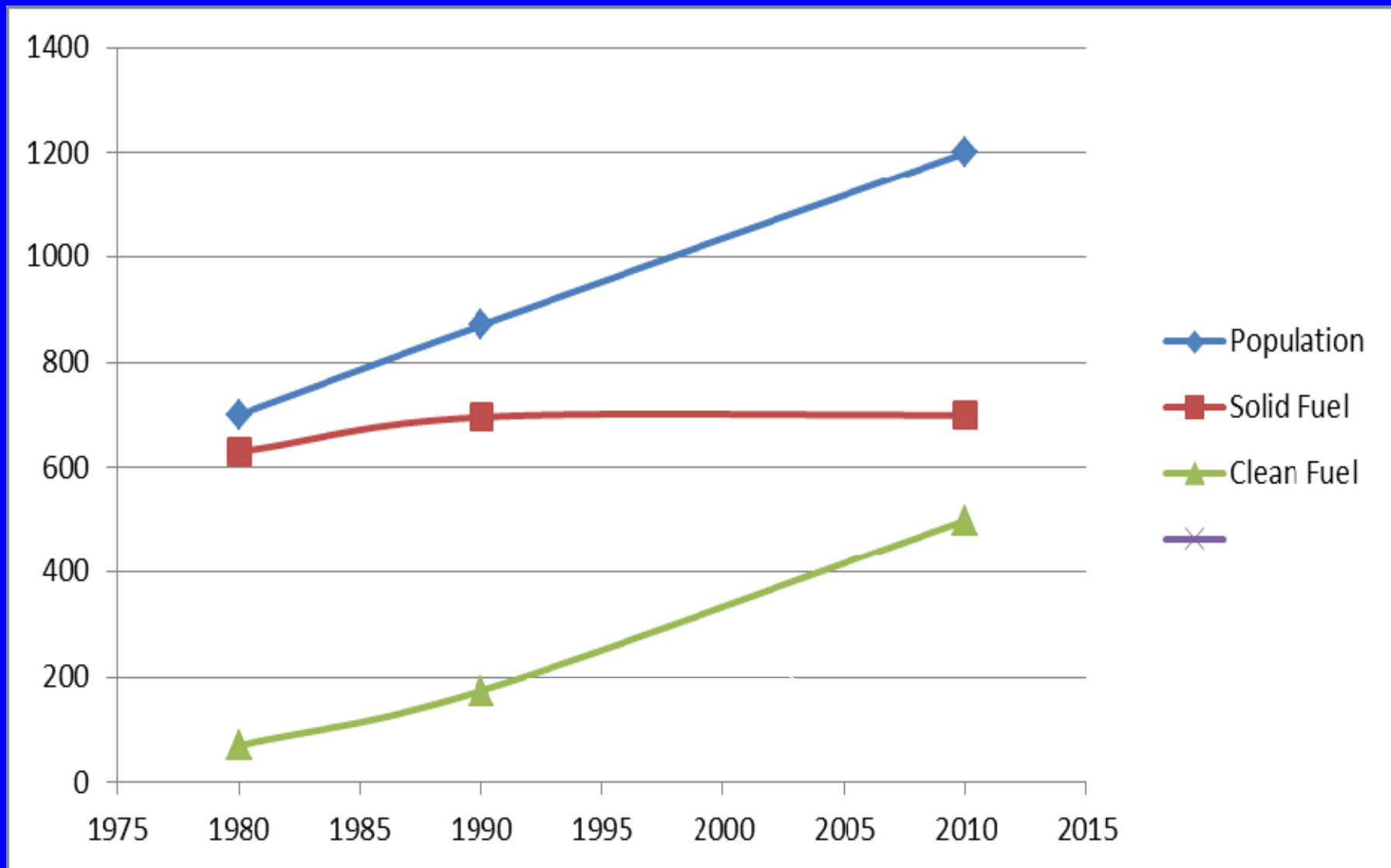
- What are the barriers to usage?
  - Knowledge – information to come separately
  - Reliability of supply (refills) – double cylinder
  - Cost
    - Upfront costs – perhaps add stove and table
    - Refill amount – use JAM to facilitate
    - Recurring cost – big longterm issue

# Ideas being pursued

- 1. Combine with pregnancy benefits in public health system
- 2. Target subsidies even more effectively – turn them into social investments
- 3. Combine with employment benefits in the Rural Employment Scheme
- 4. Change to full opt-in system – reduce subsidies even more from middle class
- 5. Do not, however, stop subsidies to the poor yet: Preserve at least for Ujjwala users for 5 years, perhaps expand for very poorest

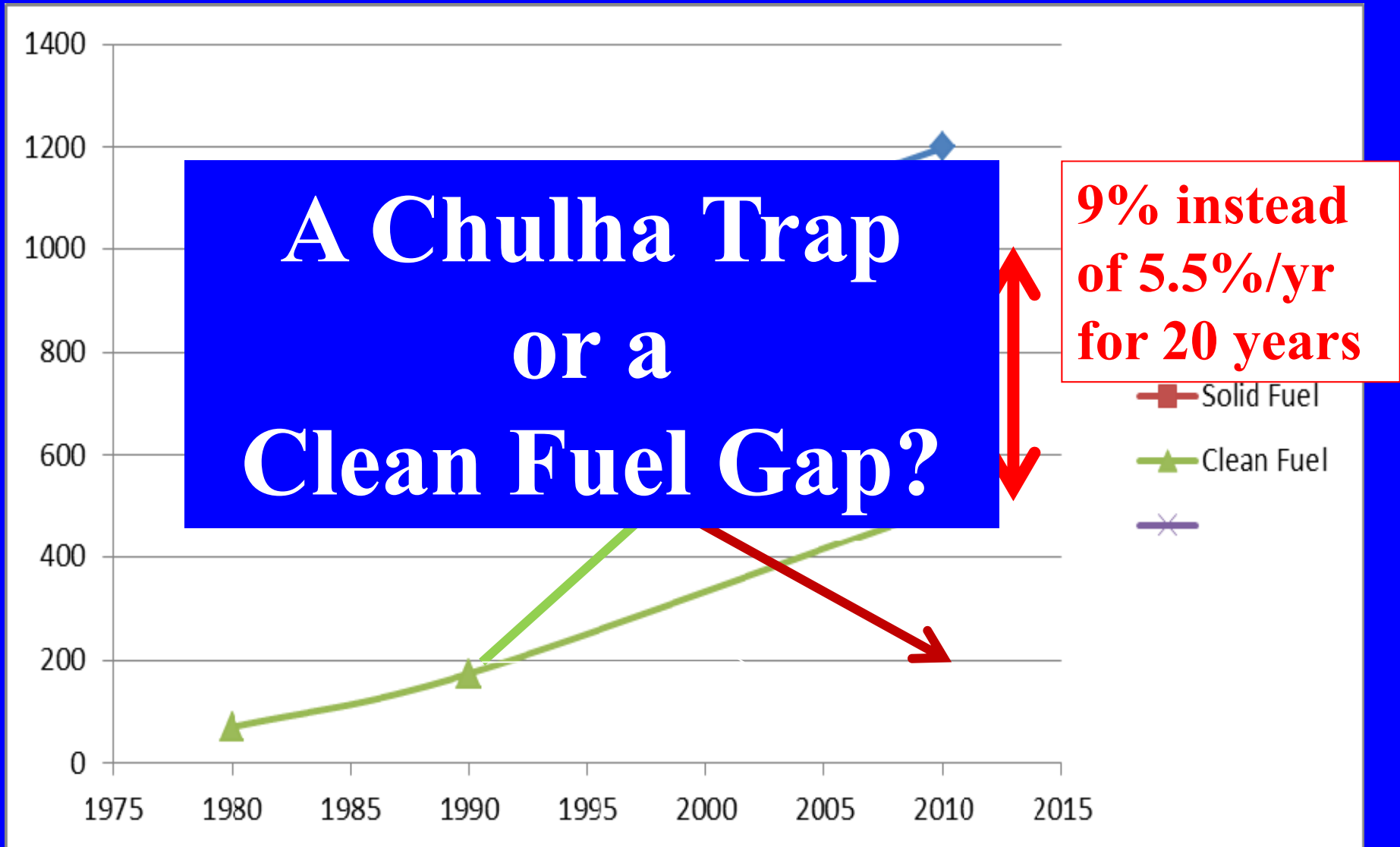
# India: What happened?

Millions



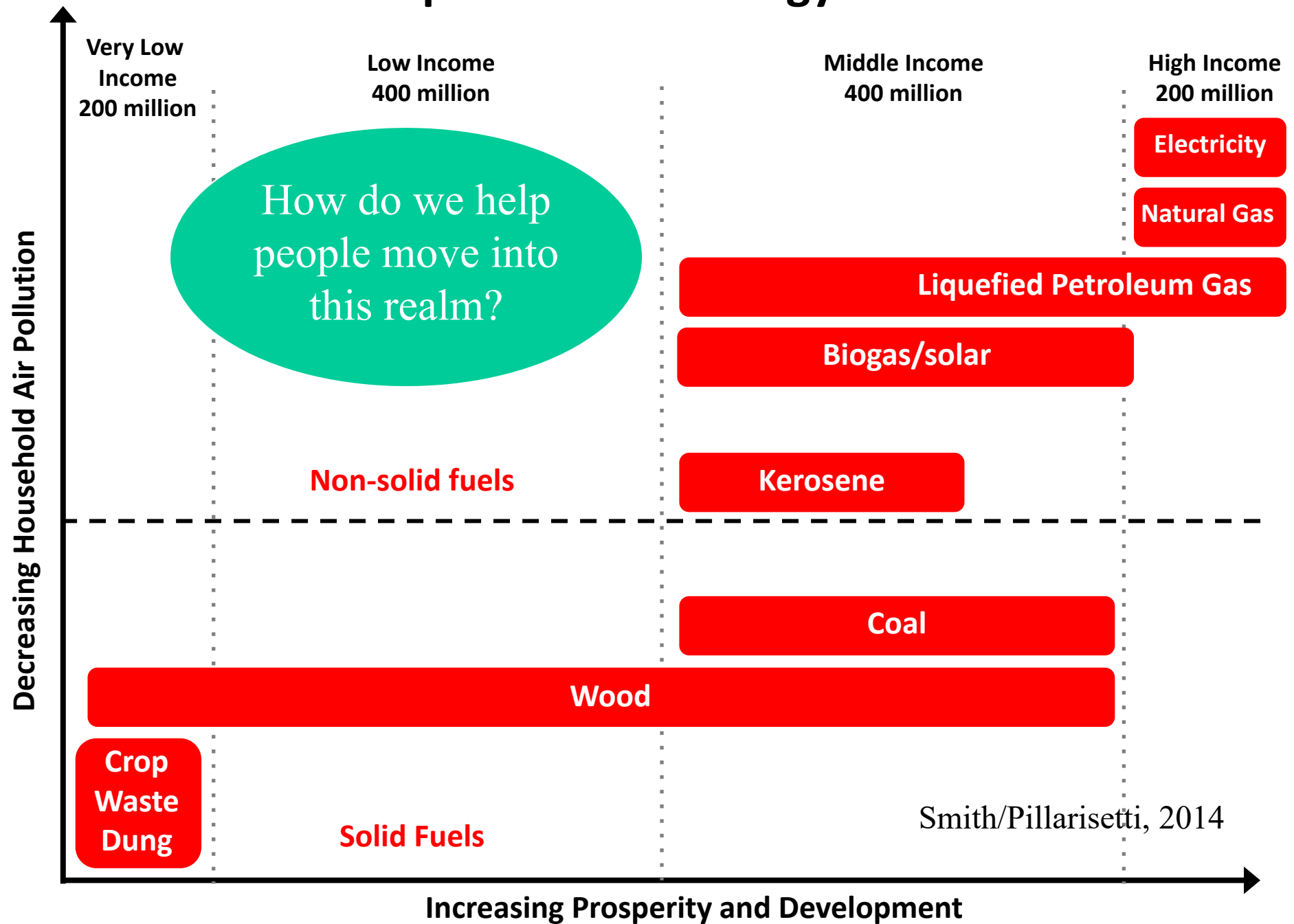
# India: What If?

Millions

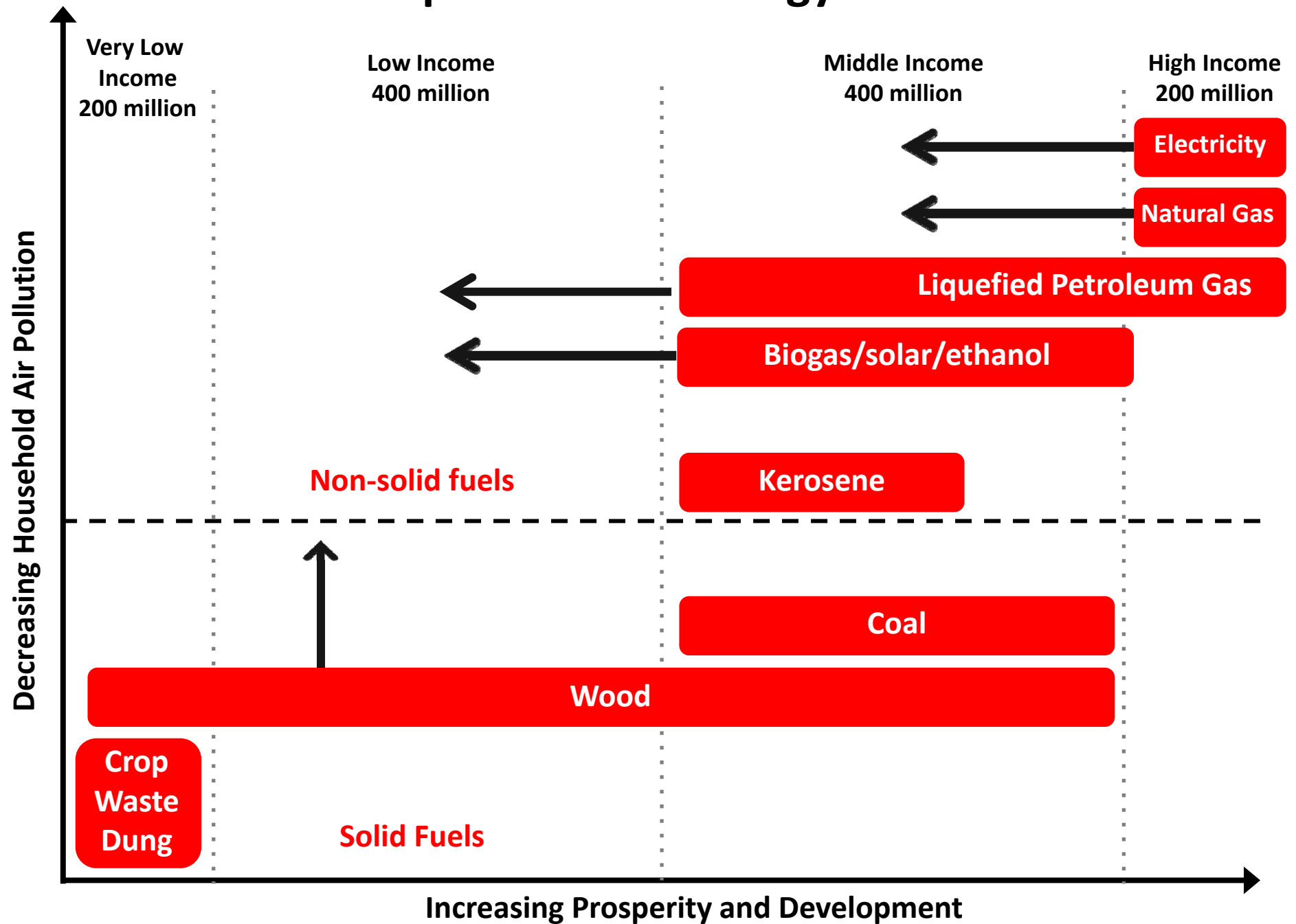




# Conceptual Indian Energy Ladder

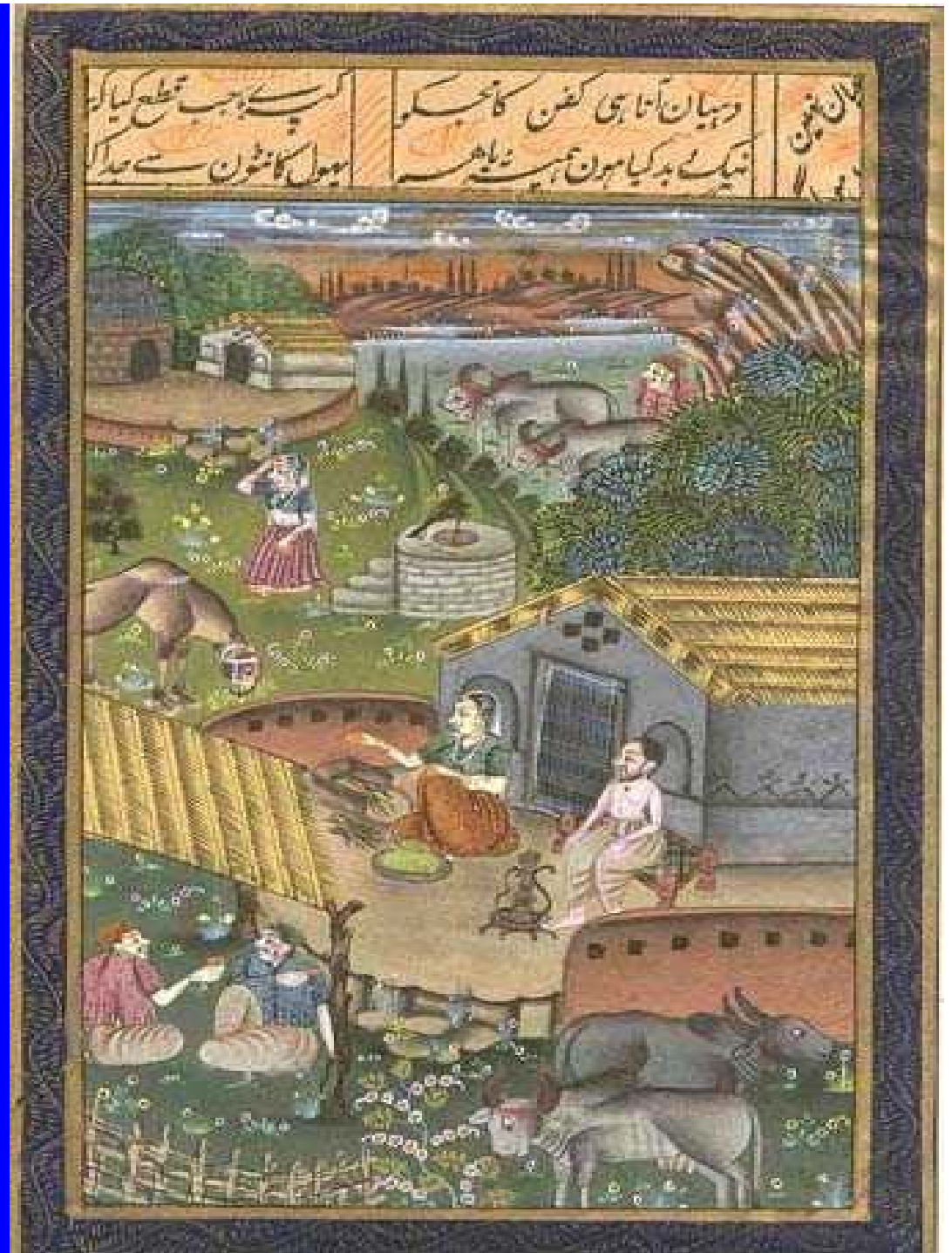


# Conceptual Indian Energy Ladder



Many thanks

Publications and  
presentations on website  
– easiest to just  
“google” Kirk R. Smith



## Distributors By Performance Rating in the District : PUNE (POONA)

DistributorName	DistributorAddress	Rating
MARUTI HP GAS GRAMIN VITRAK	AT POST - SAHAJPURWADI TAL - DAUND MAIN ROAD	★★★★★★
SHAH GAS AGENCY	1360 SHUKRAWAR PETH PUNE	★★★★★★
SANT DNYNESHWAR MAULI GAS AGENCY	529 ALANDIDEVACHI TAL. KHED DIST. PUNE	★★★★★★
KALPTARU HP GAS GRAMIN VITRAK	KALPATARU,GANPATI CHOWK KAMSHET,OLD PUNE -MUMBAI HIGHWAY TAL - MAWAL	★★★★★★
SHIV CHIDAMBAR HP GAS AGENCY	AT POST ALEPHATA Nagar Road Tal - Junner	★★★★★★
STATE RESEVE POLICE FORCE	GR-VII DAUND PUNE	★★★★★★
POLICE SUVIDHA	H P GAS DISTRIBUTORS S R P F GROUPS I & II RAMTEKDI PUNE-22	★★★★★★
SHREE GANESH HP GAS GRAMIN VITRAK	GURUDATTA COMPLEX KEDGAON CHOWFULLA ROAD,BORIPARDHI TAL DAUND	★★★★★★
AARADHYA HP GAS AGENCY	WARD NO. 4, AT POST BELHE TALUKA JUNNER	★★★★★★
OZA GAS AGENCY	MAIN ROAD DAUND PUNE	★★★★★★
MAHALAXMI HP GAS GRAMIN VITRAK	A/P SHELGAON TALUKA - INDAPUR	★★★★★★
YASHODHAN HP GAS AGENCY	VALHE NEAR WATER TANK TAL - PURANDHAR	★★★★★★
PRADHUMANYA HP GAS GRAMIN VITRAK	SURVEY NO 952, AT POST KADUS, TALUKA KHED KADUS	★★★★★★
	SHOP NO 4, REU	

Performance	Meaning
★★★★★★	85% delivery in <= 2 day 'Excellent'
★★★★★	85% delivery in <= 4 days 'Good'
★★★★☆	85% delivery in <= 6 days 'Average'
★★★☆☆	85% delivery in <= 8 days 'Below Average'
★★☆☆☆	85% delivery in > 8 days 'Poor'

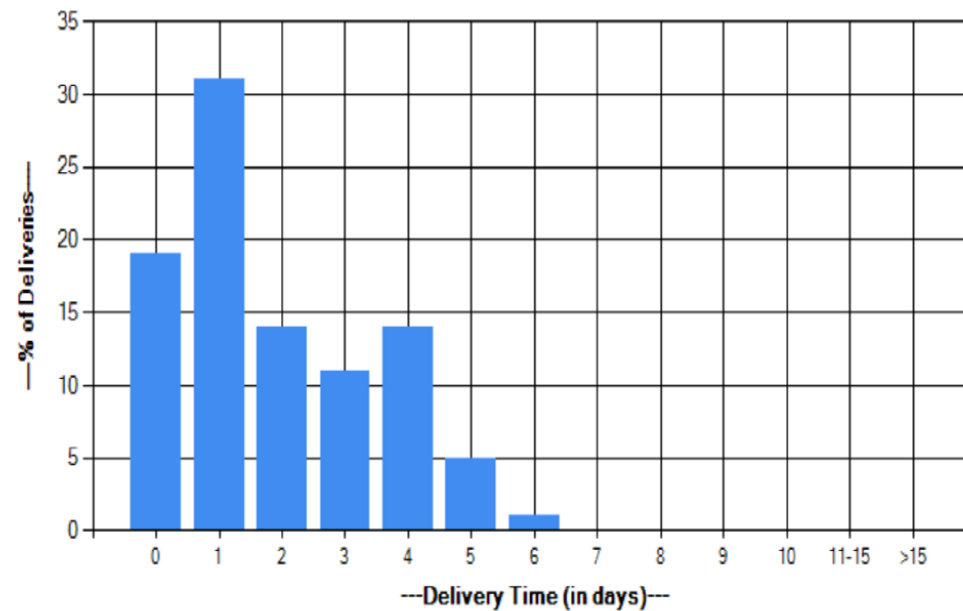


Type here to search



<https://myhpgas.in/TP/DistributorTimeToDeliver.aspx?By3+8MTAom8mbGo6iJ3j2WDHdGhd5OnS>**SHAH BROTHERS****1, MARKET YARD COMM. COMPLEX, PARDESH PURA, JUNNAR, Maharashtra-  
Excl Mum/Thane/NMu, Pin Code:410502**

Refills delivered between 29/05/2017 to 05/06/2017

**Distributor Time To Delivery**

Delivery Time (in days)	No of Refills delivered	% of Total Delivered	Cumulative % Delivered
0	686	19.00	19.00
1	1082	31.00	50.73
2	519	14.00	65.62
3	391	11.00	76.84
4	519	14.00	91.74

Add to the favorites bar by selecting ☆,



## Audit Distributor

» Distributor Information

» Summary Distributor Rating

Sr No.	LPG ID	Consumer No.	Consumer Name	Address	Total No. of Refill Delivered	Subsidized Refill Qty
19988	2 9110 9137 0002 2400	628794	ROKADE ASHOK BABURAO	628794 NIRGUDE LOKHANDE MALA JUNNAR Pin-412401	4	4
19989	2 9110 9137 0002 2399	628793	DHOLE SHATRUGHNA WAMANRAO	628793 YENERE 979, MANJARWADI JUNNAR Pin-410502	13	12
19990	2 9110 9137 0002 2398	628792	SHAIKH MASARRAT JAHAN A R	F-26628-MANGALWAR PETH KAJI GA JUNNAR, NR GULISTAN PUNE Pin-410502	6	6
19991	2 9110 9137 0002 2396	628790	SHAIKH JAMIR A KADAR	F-26626-SHIPAI MOHALLA, NR ANJ O/P ZAHID SUBHEDAR ISAMUUDIN PLAZA Pin-410502	11	11
19992	2 9110 9137 0002 2395	628789	JADHAV MADHUKAR SHIVAJI	789 SADGURUSAMARTH APPTALE ROAD, NIRGUDE JADHAVVADI Pin-410502	3	3
19993	2 9110 9137 0002 2394	628788	PAWAR PRADIP MARUTI	88 ASHTRWAD BHAGESHWAR ROAD, WARULWADI Pin-410504	11	11
19994	2 9110 9137 0002 2392	628786	MANDLIK ARVIND KHANDU	628786 F-26622-BELSAR JUNNAR PUNE Pin-412401	6	6
19995	2 9110 9137 0002 2389	628783	SHINDE SHANTARAM KUSHABA	628783 F-26619-HAPUSBAG AGAR JUNNAR PUNE Pin-410502	9	9
19996	2 9110 9137 0002 2386	628780	JAMADAR SHANAJ AKHTAR	SADABAJAR PETH DHOBLE HOSPITAL 2 ND FLOOR JUNNAR Pin-410502	17	2
19997	2 9110 9137 0002 2384	628778	PATHAN JABIN RAUF	M 150 BADSHAH TALAV N/R MAJID PUNE Pin-410502	8	8
19998	2 9110 9137 0002 2382	628775	SARJINE SUSHILA GANPAT	ALDARE SARJINEWADI PUNE Pin-410502	9	9
19999	2 9110 9137 0002 2381	628774	MANDLIK MACHINDRA DIGAMBER	628774 F-26610-NARAYANGOAN BAJAR PETH PUNE Pin-410504	8	8
20000	2 9110 9137 0002 2380	628771	JADHAV ASHOK MAHADEV	628771 F-26607-SAWARGAON JUNNAR PUNE Pin-410504	10	10

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The national average of consumption of domestic LPG cylinders is 7 cylinders per consumer for a year. Consumers with Above Consumption are those consumers who have availed more than 7 cylinders in a financial year.

\* Calculation basis 80% of bookings cleared

Refill I

S.	Aadhaar Linking	Aadhaar Linking	Bank account	Message
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