

LPG in Asia: How was it Done?

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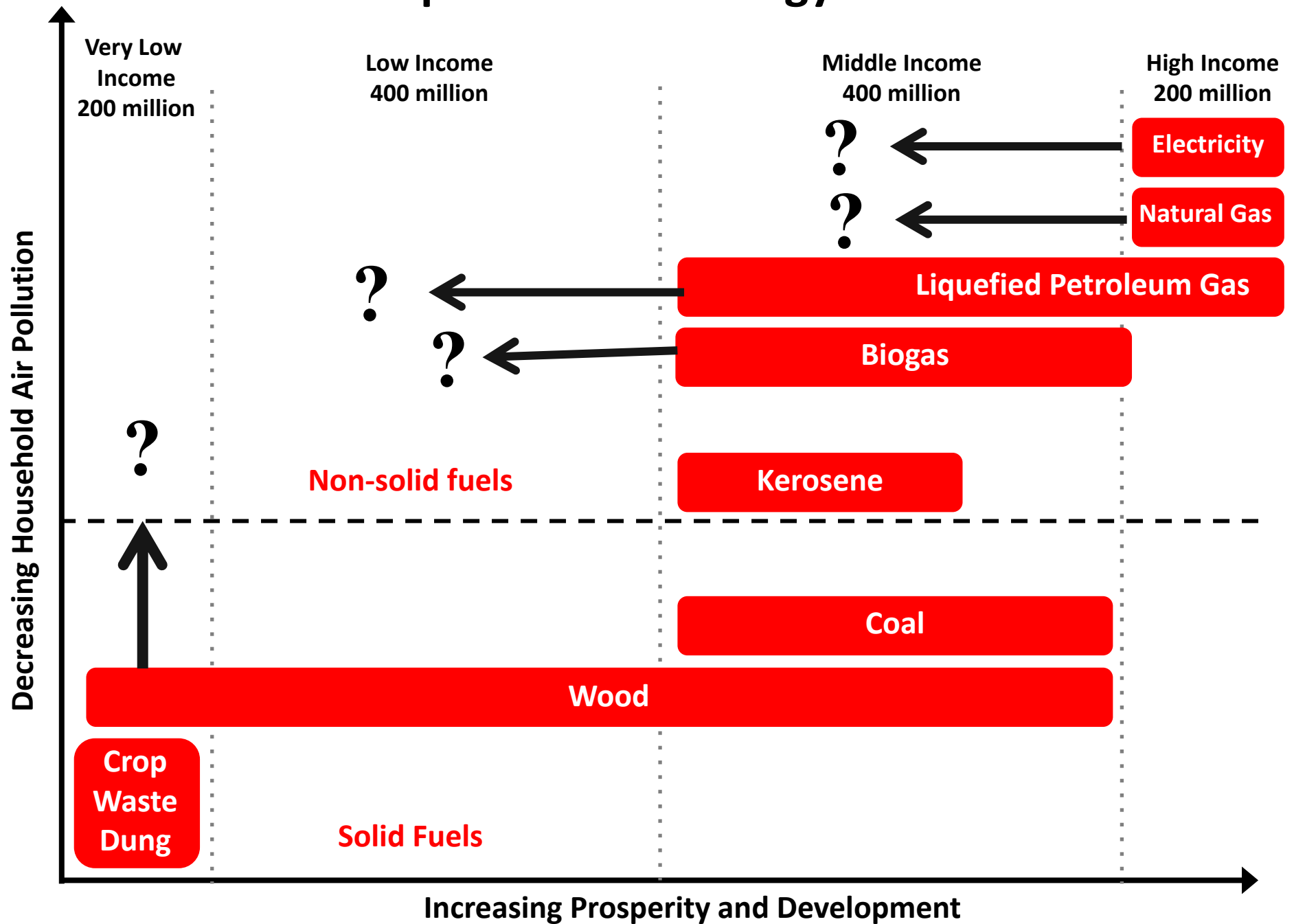
India Habitat Centre, New Delhi

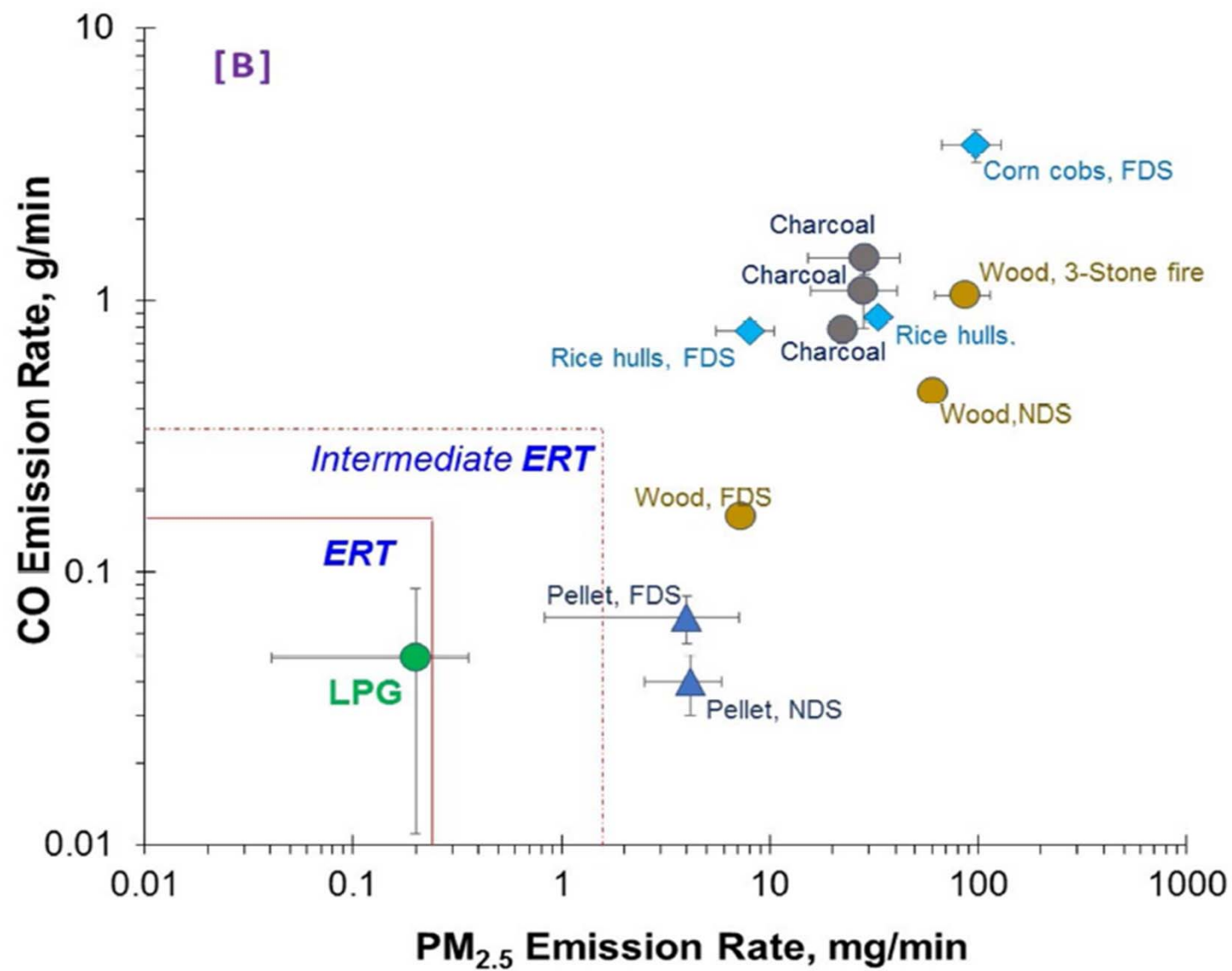
**“Towards the elimination of the use of solid fuels and
kerosene in the Americas”**

PAHO Workshop, Mexico City

Sept 12, 2019

Conceptual Indian Energy Ladder





Guofeng et al., 2018



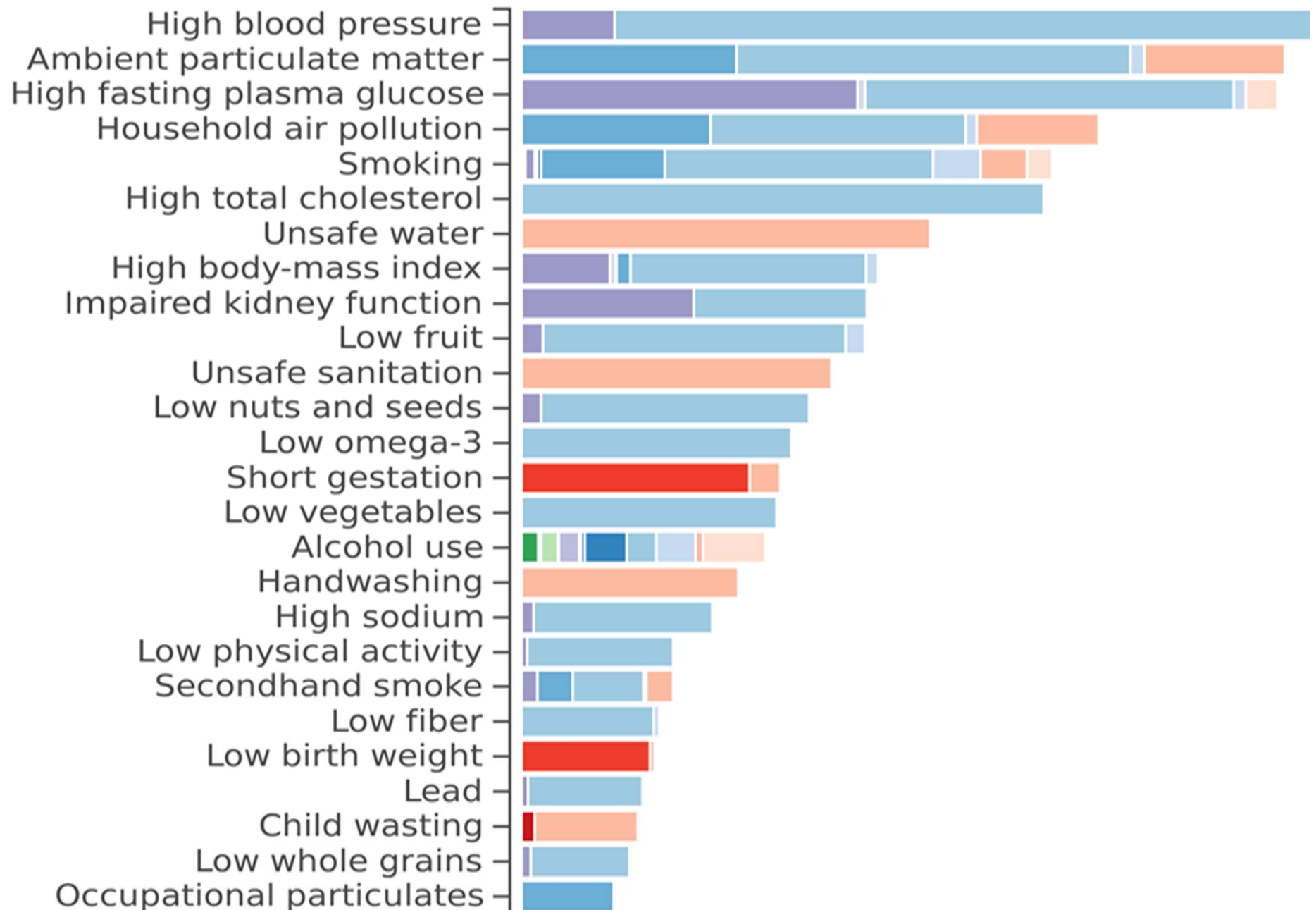
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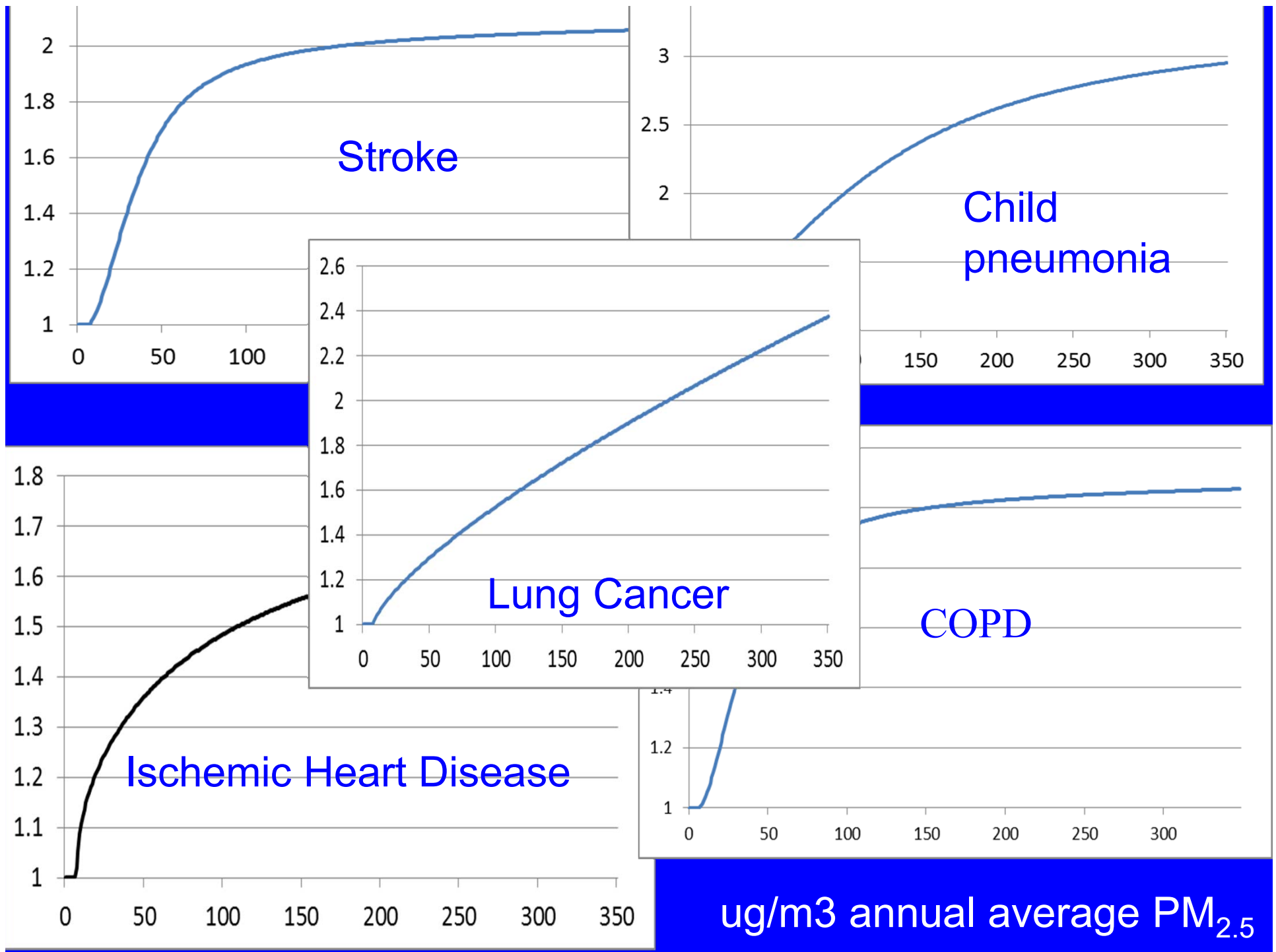
Tubito

Road Map

- Health burden and gas fuel
- What has been done in India?
- Advantages of targeting subsidies better
- Impact of households on ambient pollution
- What has been done in Indonesia?

India, Both sexes, All age





Burden of Disease

- Dynamic (changing) estimates by both WHO and IHME – overlap but not equal
- Not fixed precise estimates, more like wide bands that shift over time.
- Burden of solid cookfuel use determined by
 - Epi studies with and without solid fuel use – gas is often the basis and/or
 - Exposure-response studies compared to low household levels – equivalent to gas
- Thus, can be interpreted as health effect of not using gas

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



Kheda District,
Gujarat, India
1981

700 million
people in the
Chulha Trap
until 2014
Largest number in
India's history

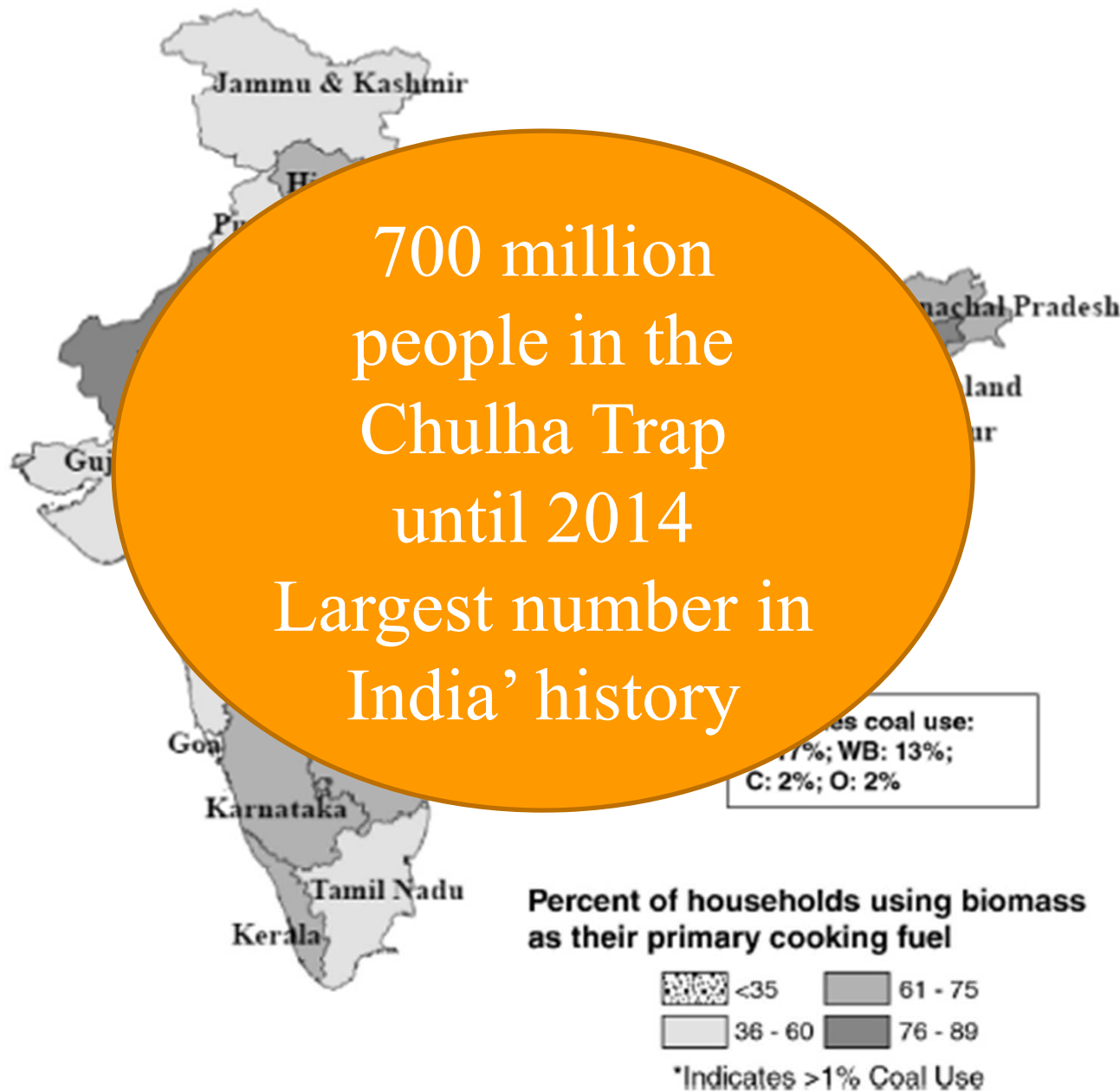


Fig. 1. Distribution by state of households using biomass or coal as their main cooking fuel in 2005. From (IIPS, 2007).

1990:
85%: 700
million people
using solid fuels

2010:
60%: 700
million people

~1980
700 million
people
in entire country

Situation in 2014

- All LPG in country sold at subsidy to households: ~USD 2-5/14 kg cylinder lower than international price
- No upfront costs provided
- Tens of millions of ghost connections: dead people, non-existing people, etc.
- Substantial leakage of LPG into restaurants, trucks, fishing boats, etc.
- Major bureaucratic hassle keeping track and wasting billions of USD annually

Associates



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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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on
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 far better to make LPG available to poor populations

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Occupational and
Environmental Health



PAHAL Program – 2015

- All LPG sold at international price – no subsidy available on market
- People qualified for subsidy received it directly into their bank accounts
- Only when they purchase a refill does it get put into the account for the next purchase
- Instantly won the Guinness Book of Records as the largest bank transfer in history
- Eliminated tens of millions of wasted connections

But no upfront costs provided

- People need to pay their own “connection” cost ~\$30 for deposit on first cylinder, stove, etc.
- This barrier is substantial for poor
- Needed to have source of funds for paying this cost for the poor.
- Subsidy wasted on better off households
- But politically very difficult to remove subsidies

Give It Up campaign: 2015

- Middle class asked to give up their LPG subsidies – not taken away
- 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



Feel the Joy of Giving

: Initiated by



Ministry of Petroleum & Natural Gas
Government of India



MyLPG website: Feb 24, 2016



Search By: ☒ Giveltup Champion ☐ Beneficiary

Search Name: LPG Id:

SEARCH

SHOW ALL

#Giveitup 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

By 2016, however

- About 10 million had given it up, but the rate had slowed.
- Limit subsidy to those earning less than 15,000 USD/year did not bring much more
- Something else needed

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.”*

Ujjwala

- Adding 10,000 distributors to the 18,500 now existing.
- National no fault insurance scheme for accidents – 6 lakh per accident – national number to call
- 1.2 billion USD earmarked for one-time connection costs
- 5 kg cylinder developed
- All transactions only to women's accounts



Every woman will get her due respect and dignity.

"You can imagine what happens to a mother's health in that home and how her children must be breathing with all that smoke." - Narendra Modi.

With the Pradhan Mantri Ujjwala Yojana, that will benefit 5 crore women belonging to below-poverty-line households.



Clean Fuel. Better Life.

The Ujjwala Yojana will be launched by the Hon'ble Prime Minister,

Shri Narendra Modi

in the gracious presence of
Shri Ram Naik
Hon'ble Governor, Uttar Pradesh

Shri Kalraj Mishra
Hon'ble Union Minister of Micro,
Small and Medium Enterprises,
Govt. of India

Shri Dharmendra Pradhan
Hon'ble Minister of State,
Petroleum and Natural Gas
(Independent charge), Govt. of India

Shri Manoj Sinha
Hon'ble Minister of Railways,
Govt. of India

At Maldepur Morh, Ballia, Uttar Pradesh, on 1st May, 2016 at 10 AM.



Ministry of Petroleum & Natural Gas
Government of India

Terms & Conditions apply. For more information, kindly visit your nearest LPG distributor.

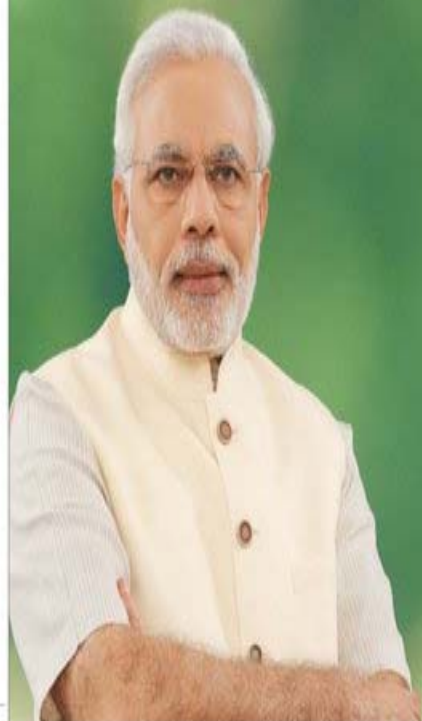


संकल्प
से सिद्धि
नमो ईश्वर्य भुवने (2017-2022)



Ministry of Petroleum & Natural Gas
Government of India

UJJWALA BRINGS TIME FOR FAMILY & EDUCATION



3 Crore
Beneficiaries



Clean Fuel. Better Life.





Pradhan Mantri Ujjwala Yojana

Women empowerment through Enhanced economic productivity



Faster & efficient cooking



Save time & effort on fuel wood collection



All year round easy availability of fuel



Providing more time to enhance skills



More time to engage in other socio-economic activities





Largest direct intervention initiative for women of rural & urban households



5,00,00,000 women to directly benefit from an allocation of Rs.8,000 crore



Free LPG connections to BPL households



Providing clean fuel to women



Directly address health hazards due to use of wood, cowdung, etc in cooking



Free women from drudgery of collecting fire wood



Smoke free house – to all including children



Ministry of Petroleum & Natural Gas
Government of India

PRADHAN MANTRI UJJWALA YOJNA



3Crone

CHOKED LUNGS
BURNING EYES
AN OLD STORY NOW

[illegible]

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[!\[\]\(844169987a590ed8c7e31d5d18950e8d_img.jpg\) Twitter](#)

[illegible]

2017: Expanded target for 2019

- 30 million more new BPL connections
- Total to be 86 million since 2015
- Plus 40+ million natural growth in middle class
- Perhaps >80% of country to be covered

Of course

- Just providing affordable access to LPG or other clean fuel does not mean people instantly switch 100%
- The GoI has found a way to give access to some 500 million poor people
- Now we need to find ways to accelerate usage so that chulha use disappears

Barriers

- Information – people do not know or are afraid
- Reliability: more and different types of distributors; two cylinders for all
- Upfront cost: connection covered by programs, but need to cover cost of stoves
- Refill cost: need to retain subsidy for poor and enhance subsidy for very poor
- And further cut subsidies to middle class

Subsidy or ?

- In order for public support of clean fuels to be termed “social investments,” they need to be far better targeted than in the past.
- Give It Up and income ceilings help, but more targeting is needed
- Insufficient income tax coverage to use tax records
- Use of modern asset-based indicators from national surveys offer hope
- Embrace modern IT to do so

What have we learned?

- Health sector used to promoting usage – indeed it is common – latrines, TB drugs, bednets, condoms, low salt foods, etc.
Access is just the start
- Apply behavioral and economic incentives to LPG
- Smart subsidies to focus on specific financial barriers for the poor that then can be termed social investment

Enhancing usage

- Panchayat program ongoing now – 100,000 village meetings to provide info and encourage usage; Themes:
 - Health, environment, empowerment, cost, safety
- New program to combine seven separate pro-poor interventions in villages – LPG, health insurance, vaccination, etc.
 - 65,000 villages since April 2018
- Exploring program with Health Ministry to focus on pregnant women – most vulnerable

Why India?

- Vast infrastructure already in place: pipelines, bottling plants, cylinder manufacturing, port facilities, 18,500 distributors, etc.
- Largest Indian company and two other large companies do the marketing: Private sector but 55% government owned
 - Efficiency of private company, but
 - Still responds to calls for social programs
- Massive commitment from top to bottom: PM to distributor
- JAM is vital

JAM

- 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 to bring rural poor into the global economy – Digital India

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	★★★★★★
KALPATARU 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	

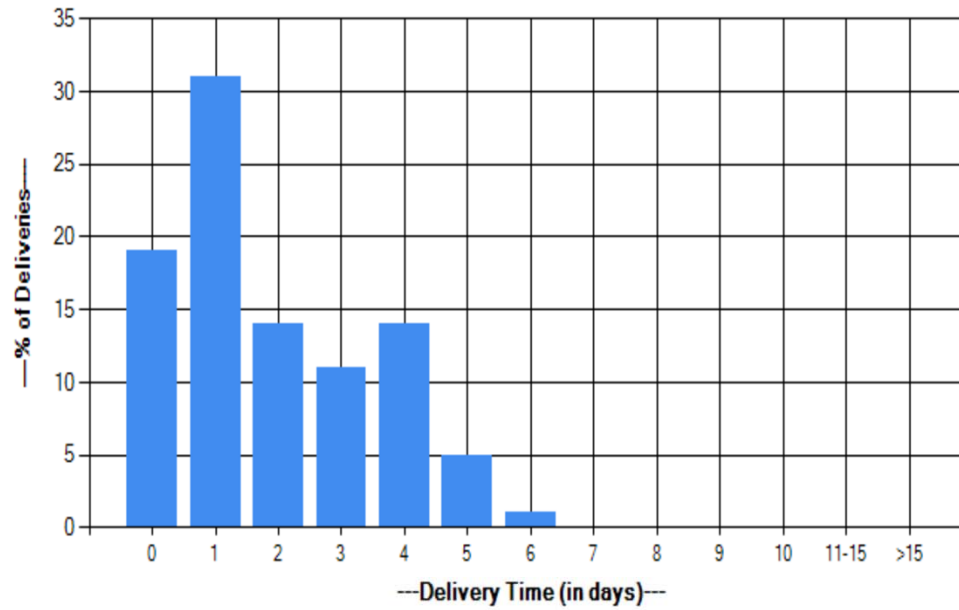
Performance	Meaning
★★★★★★	85% delivery in <= 2 day 'Excellent'
★★★★★	85% delivery in <= 4 days 'Good'
★★★★	85% delivery in <= 6 days 'Average'
★★★	85% delivery in <= 8 days 'Below Average'
★★	85% delivery in > 8 days 'Poor'

<https://myhpgas.in/TP/DistributorTimeToDeliver.aspx?8y3+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
19987	2 9110 9137 0002 2401	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 ASHIRWAD 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 C

S.	Aadhaar Linking	Aadhaar Linking	Bank account	Message
----	-----------------	-----------------	--------------	---------

Targeting subsidies can save money

- Eliminate subsidies to top 2-3 income quintiles
- Keeping current levels for those in the 4th
- Increase subsidy in the bottom quintile
- Would keep everyone's clean household fuel cost less than 4% of income
- And cost the government less than the current system



“ Now no more
smoke-induced tears
for our mothers
while cooking ”

- Shri Narendra Modi, Hon'ble Prime Minister

Shri Narendra Modi

Hon'ble Prime Minister

shall distribute

**LPG connections to 5000
BPL families under the
GiveltUp campaign**



Date: 2nd October 2015 | Venue: Dumka Airfield Ground, Dumka, Jharkhand | Time: 1:00 pm



www.facebook.com/petroleummin | www.MyLPG.in | www.twitter.com/PetroleumMin

Times of India

Gandhi's
Birthday

Indonesia story

- Kerosene subsidies in 2005 were becoming a big burden on government
- Kero, however, is an inefficient cookfuel, impacts health, and produces black carbon
- No need for kero for lighting since Indonesia had become nearly fully electrified

In 2008, Indonesia

- Raised the LPG subsidy slightly
- Stopped kero subsidies
- Developed a 3 kg LPG cylinder so that the poor could purchase easily
- Gave everyone a LPG stove and first cylinder
- Retrained kero sellers and others to sell LPG

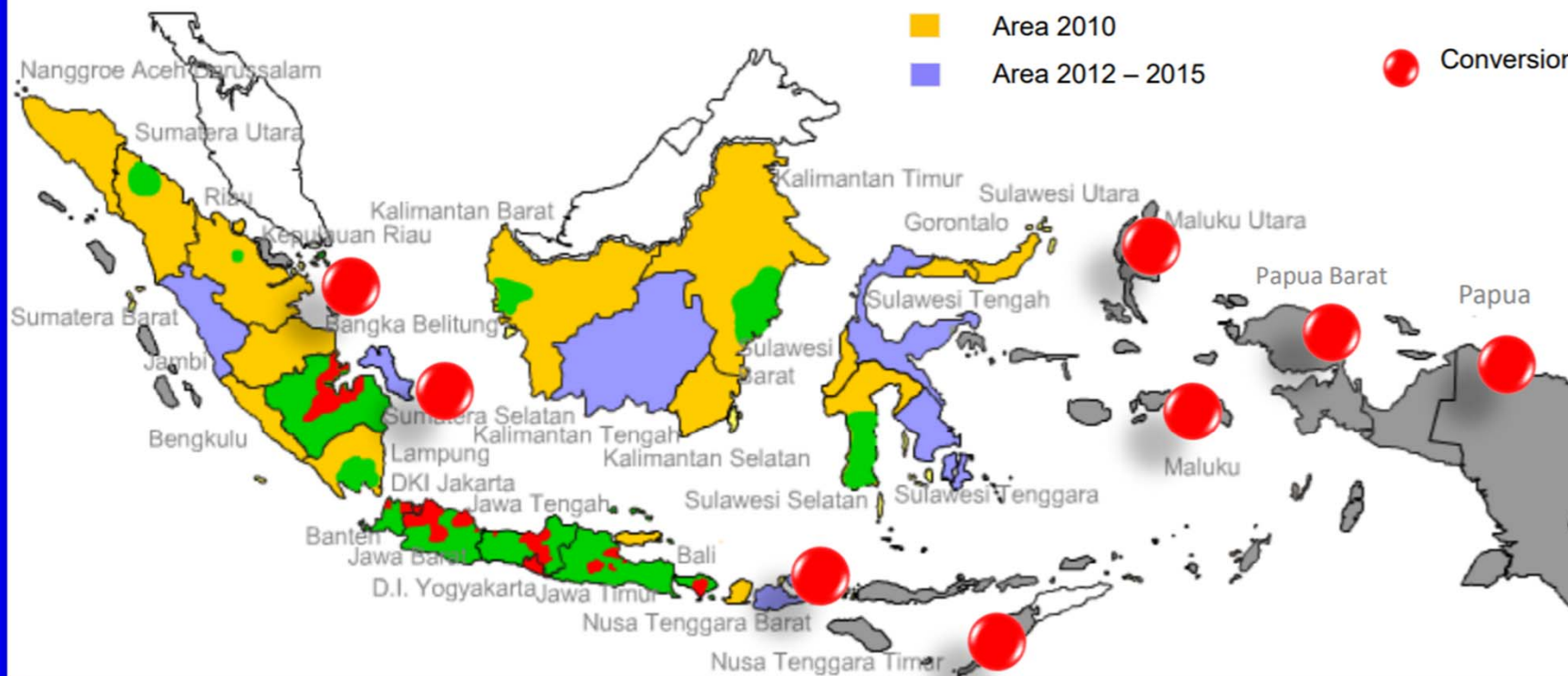
Area 2007-2008

Area 2009

Area 2010

Area 2012 – 2015

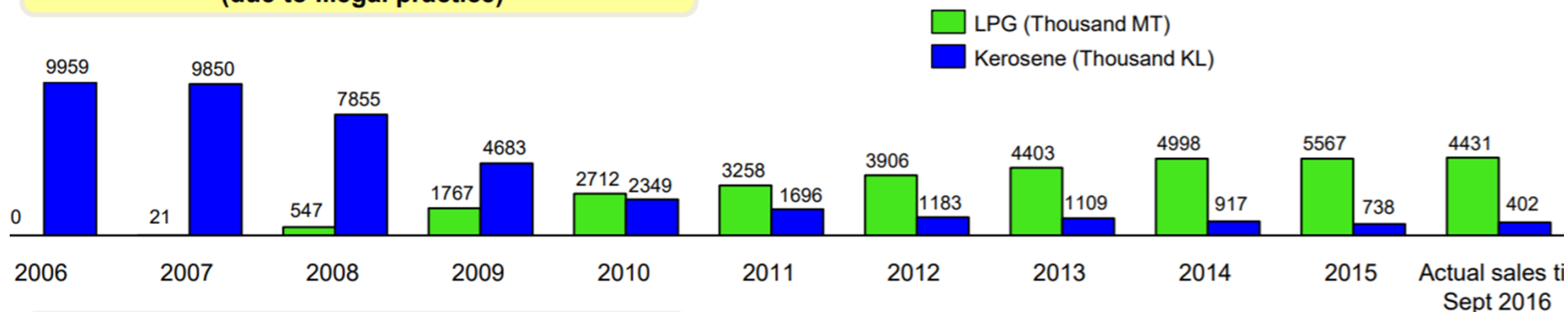
Conversion Planning



Sales of Kerosene vs Sales of LPG 3 kg

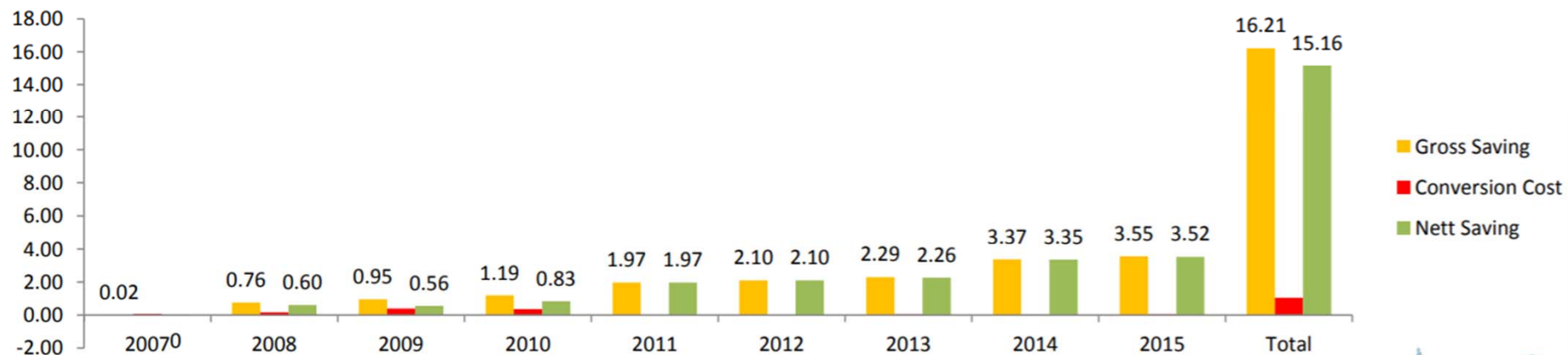
1 liter kerosene ~ 0,4 kg LPG

Diminishing misuse of Kerosene for Cooking
(due to illegal practice)



Subsidy Saving (un-audited)

Reaching USD 15.16 Billion



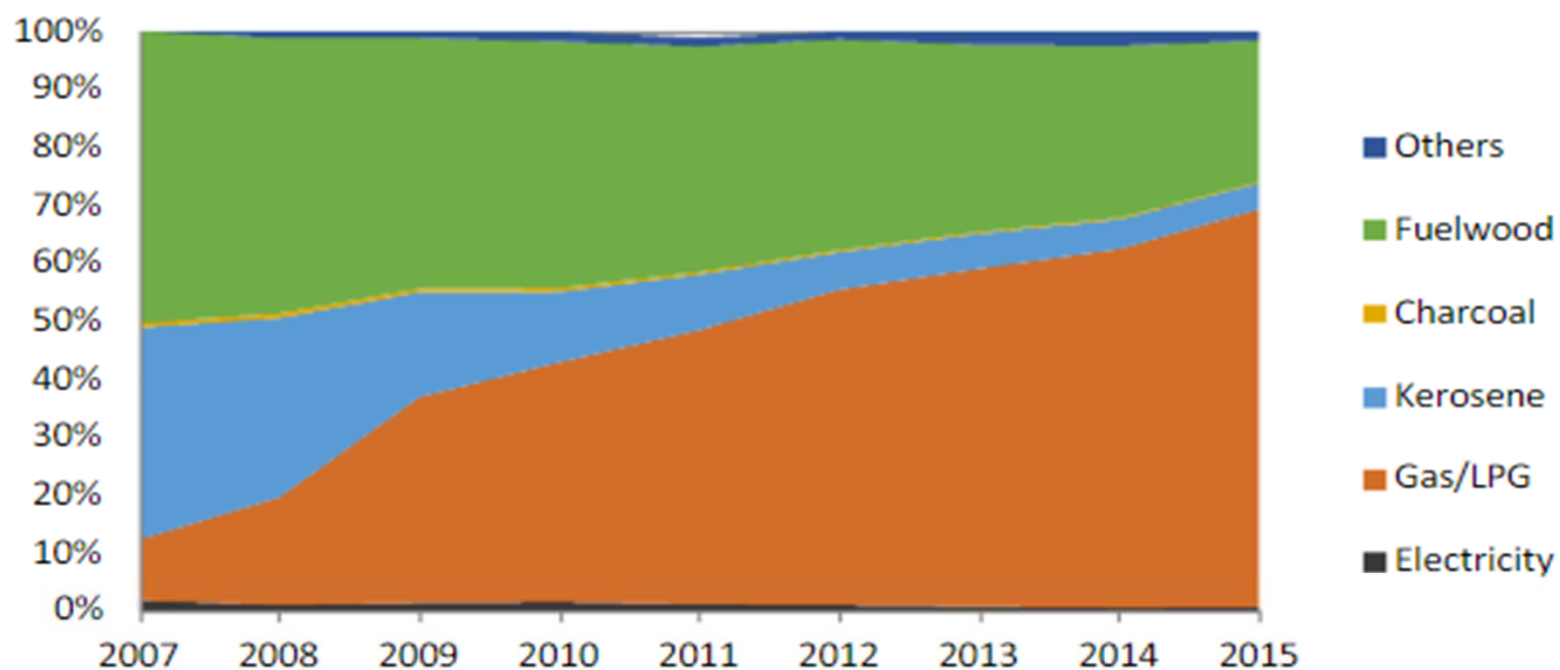
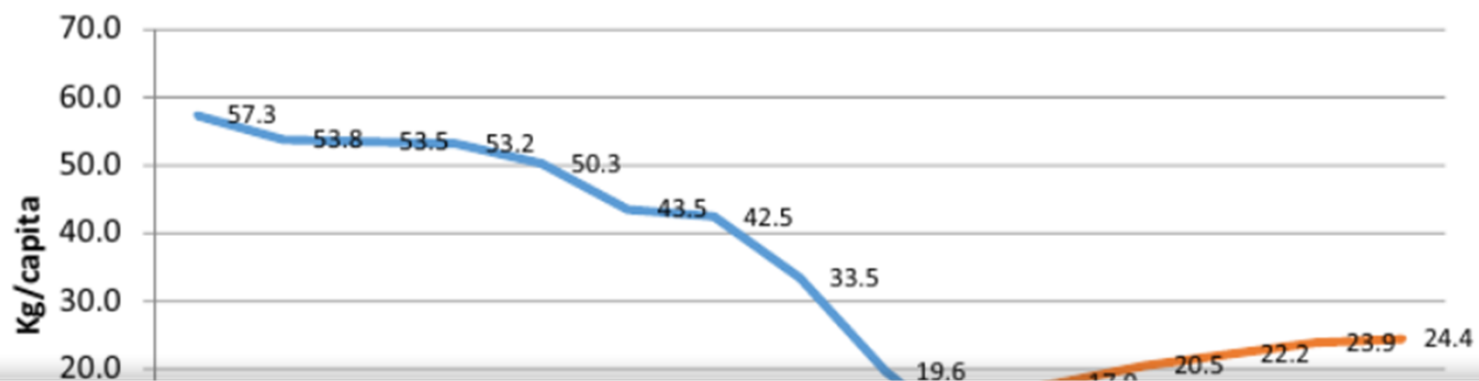


Fig. 4.

Fig. 1. Percentage of households and their primary cooking fuel in Indonesia, 2007–2015
(Source: BPS, 2017)

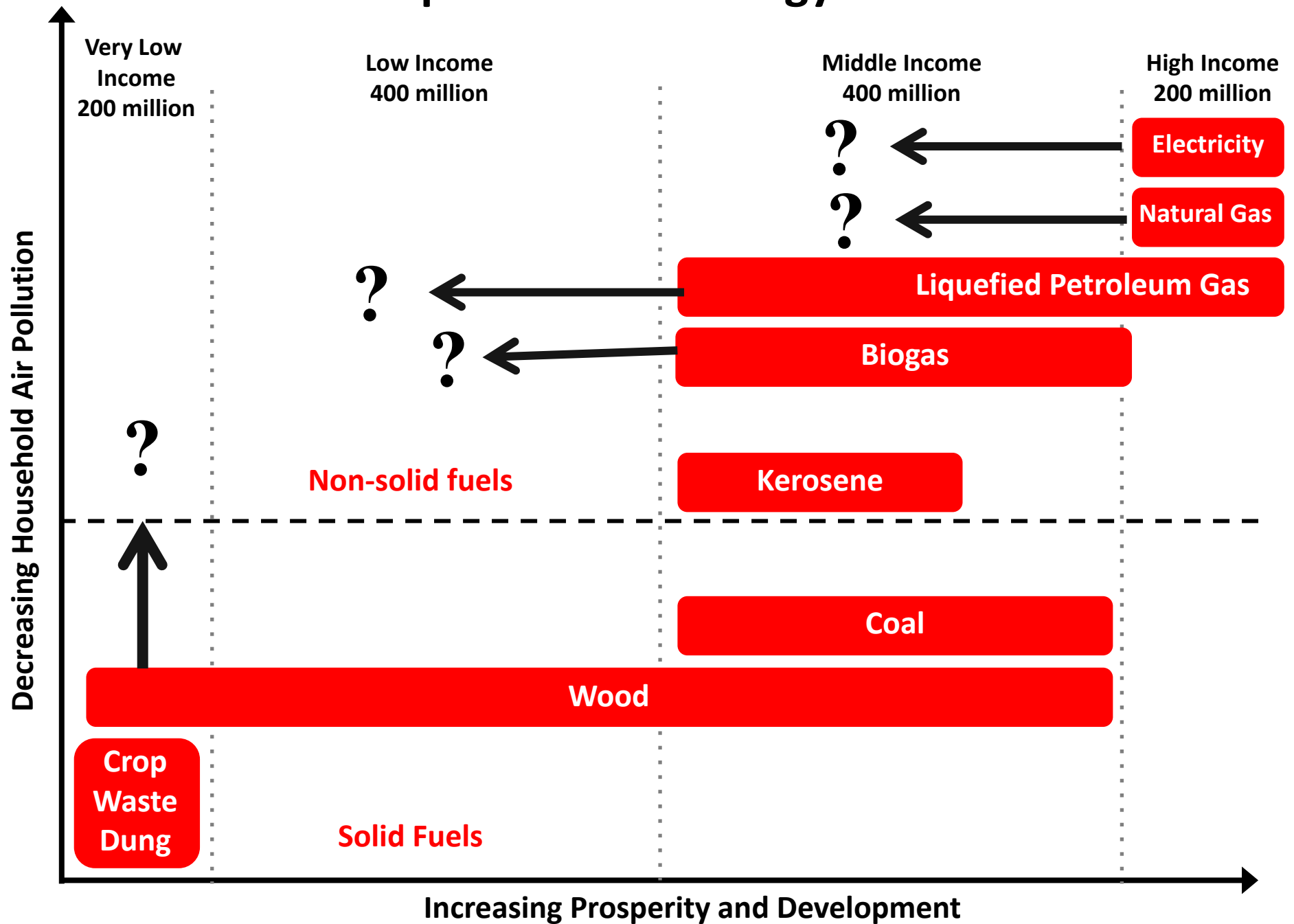
As a result

- Kerosene sales went way down
- LPG sales grew, but less since more efficient
- Government saved substantial subsidy
- Climate and health impacts presumably went down
 - Although no measurements yet published

Consider if India was in Latin America

- How rich would it have to be to afford such an LPG program?
- Like Brazil? Like Mexico?
- No, same income per capita as Bolivia, the fourth poorest country in the region

Conceptual Indian Energy Ladder



Many thanks

For publications
& presentations:
Just “Google”
Kirk R. Smith

