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**GSIREPORT**

# Power, Gender and Fossil-Fuel Subsidy Reform in India

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May 2014

Written by Laura Merrill. With thanks to Damon Vis-Dunbar, Kieran Clarke, Shruti Sharma and Tom Penner for their support. Any mistakes and inaccuracies remain the responsibility of the author.



## Executive Summary

Power and energy in India have both everything and nothing to do with women. Fossil-fuel subsidies might appear to have even less to do with women and gender relations. Yet their reform could have negative impacts, while at the same time representing an opportunity for women and Indians' access to modern forms of energy. This report looks at the impacts of fossil-fuel subsidy reform on women, making four main observations:

- 1. Fossil-fuel subsidies have historically provided little benefit for rural women:** Rural women in India have benefited very little from fossil-fuel subsidies over the years: two thirds of the population still use biomass (i.e., firewood or dung cake) as their main source of cooking fuel. Use of such fuels leads to many deaths from indoor air pollution every year. A quarter of India's population live without access to electricity. Fossil-fuel subsidies have largely ignored women, who gather, make, and cook with biomass fuels. Gender analysis finds that very little of the energy sector budget is aimed specifically at women and children. Furthermore, in some areas the government spends six rupees for every rupee of income transferred to the poor through kerosene subsidies. Some observations suggest that fuel switching is linked not only to price but also to the position and empowerment of women within the household, in a country where almost half of females are not involved in any decisions around household purchases.
- 2. Fossil-fuel subsidy reform should aim to do no harm to women:** Reform of liquefied petroleum gas (LPG) and kerosene subsidies should be undertaken in a way that does as little harm to women as possible (although it is currently stalled). The negative welfare impacts from reform of LPG subsidies will likely not be borne by poor women since they do not use it—rather, impacts will be felt by wealthier women in urban areas. Reform of kerosene subsidies will likely have a small, negative impact on poor rural women who use it for lighting, and a greater impact for urban women who use it for cooking. Poor women may feel indirect effects of increasing food prices due to reform of diesel subsidies, and have felt negative welfare impacts from increasing food and water prices linked to electricity subsidy reform in some States. Efforts to protect poor women are needed through targeted compensation measures and direct cash transfers alongside the process of reform. Efforts can be made to prevent women, who use LPG, from shifting back into using dirtier fuels: this can be partly managed through targeting subsidies at women directly.
- 3. Fossil-fuel subsidy reform will likely affect women in different ways than men:** Women spend far more time than men collecting firewood, making dung cakes, cooking, fetching water, farming and managing household resources and food. Women have less economic power and voice within the household, less education, less formal employment, and spend less time travelling than men. Just over 25 per cent of adult women have access to bank accounts, compared to just over 40 per cent of men, suggesting that shifting subsidies from fuels to direct financial transfers in the bank will hold problems of access for women. Changes to cooking fuels will likely impact women over men, while men are more likely to feel the indirect impacts of increased transport prices due to increased diesel fuel costs than women. Yet women may feel indirect impacts of increases in food prices more strongly than men. Women spend longer hours collecting water and are a larger part of the agricultural labour force, so changes in access to water from irrigation pumps (linked to reform of electricity subsidies) could have greater impacts on women than men.



4. **Fossil-fuel subsidy reform should aim to improve the lives of women:** Reform of fossil-fuel subsidies should be viewed as an opportunity to tackle both the energy needs of Indian women and their low level of empowerment. Cash transfers to compensate for fossil-fuel subsidy reform should be targeted at—and reach—women. The process of reform should also include an increase in targeted in-kind or energy access interventions (i.e., electrification, biogas, clean cook stoves, managed woodlots, LPG for kerosene programs with one-time subsidies for up-front costs) targeted at women and women’s groups, and recognizing and prioritizing the needs of over 800 million people whose current energy needs are based on biomass. The process of reform should aim to also empower women directly through means other than energy provision (i.e., cash transfers, access to credit, land, bank accounts, and voice within community structures). Empowerment will enable women to push directly for cleaner fuels within the household; fuel switching then becomes an indirect co-benefit of empowering women.

This report does the following:

- First, it looks at the differing roles of men and women in India, at fossil-fuel subsidies in general, and how subsidies have impacted on fuel switching to cleaner fuels over the years, the progress against which matters for women.
- Second, the report looks broadly at the possible direct impacts of LPG and kerosene reform on women for cooking fuel (LPG) and for lighting fuel (kerosene).
- Third, the report looks at the indirect impacts of reform on women through price increases in food and water as a result of increasing prices in diesel and electricity.
- Fourth, the report identifies those tools that have (and have not) been employed within India to understand the links between gender and energy, especially household and time-use surveys, and gender analysis of Indian energy policies.
- Finally, the report describes the opportunities for women from fossil-fuel subsidy reform, and those issues to be cognizant of when reforming subsidies for women.



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## 1.0 Gender Differences and Fossil-Fuel Subsidies

### 1.1 Gender Differences

Females in India have very different and difficult lives in comparison to males on many fronts—as infants and children with regard to access to nutrition, health and education; and as adults with differences in time spent on activities, access to economic resources, and levels of decision-making power within the household. Inequality between females and males starts from before birth in India, in that the number of girls aged under six has fallen for the past 50 years (in 2011 there were 919 girls to every 1000 boys compared to 976 in 1961) (Bhalla, 2013). A 2011 study in the British medical journal *The Lancet* found that between 4 and 12 million Indian girls have been aborted in the last three decades (Jha et al., 2011; Baklinski, 2011).

Once girls are born, their experience of inequality starts in earnest: the UN Gender Equality Index shows that India has “one of the worst gender differentials in child mortality of any country, ranking 132 out of 148 nations, worse than Pakistan and Bangladesh” (Bhalla, 2013). The World Economic Forum 2013 Gender Gap Index based on measures of economic participation and opportunity, educational attainment, health and survival and political empowerment ranked India at a very low 101 out of 136 countries, and the lowest of all the BRIC countries (World Economic Forum [WEF], 2013).

The analysis of the National Family Health Survey (2005–2006) shows a significant gender bias against females (both children and adults) for health and nutrition in most states in India (Kishor & Gupta, 2009). There are lower levels of nutrition among girls than boys, higher levels of anemia in girls and women, higher mortality among girls and women, who are likely more malnourished than men in most states (Tiwari, 2013). The story is similar for health statistics, where inequality exists in many forms and from an early age: access to breast feeding, visits to health facilities, certain food types, school attendance, child nutrition, vaccinations, being victimized by violence—the list goes on.

According to Meisen & Akin (2008) and as described in Gupta, Bist-Joshi, & Singh (2013), globally “rural women spend much of their income and time on trying to access energy sources”; “women and young girls spend almost six hours a day gathering fuel wood and water; cooking and farming; they walk long distances, averaging 4-5 miles per day, risking their own safety and health and that of their children.” The only time-use survey undertaken nationally in India (from 1999 and released in 2000) revealed the depth of inequality across the nation. Women in India spend far longer on housework including cooking and producing household goods (almost five hours a day) compared to a man’s average of 19 minutes a day (Organisation for Economic Co-operation and Development [OECD], 2014). Women also spend more time caring for household members. In India, men spend more than double the time (318 minutes a day) than women on paid work or studies (149). Men also spend more time travelling (54 minutes) compared to women (24 minutes). Furthermore, men spend more time than women shopping, sleeping, eating and drinking, leisure activities, and watching TV and listening to the radio.

Differences also exist between men and women regarding access to resources and paid participation in the work-force. India has “low rankings in female participation in the labor force, access to resources, participation in the knowledge economy, and health status . . . Less than 15% of women have access to their own bank account” (Huyer & Halhkin, 2013) and “[w]omen’s participation in the formal labor force is much lower than men’s, at 29% compared to more than 80% [of men]” yet nearly 20 per cent more women (65 per cent) than men (46 per cent) work in the agricultural labour force (Huyer & Halhkin, 2013). Statistics from the Global Index find that in 2011 26.5 per cent



of women and 43.7 per cent of men in India had an account at a formal financial institution (either alone or together with someone else) (Demirguc-Kunt & Klapper, 2012). Yet National Survey data research from 2005–2006 found that less than one in six women had a bank account of savings that they could use (Kishor & Gupta, 2009).

Gender differences between men and women exist with regard to treatment, time, and resources but also in differences in power around decision making: Huyer & Halhkin (2013) observe that “[a]utonomy in decision making is still based strongly in cultural systems, to the disadvantage of females. In the age group of 15 to 19, 46% of females are not involved in any kind of decision-making relating to household purchases, health care or visits to friends and relatives.” Women’s freedom of movement is severely curtailed—only one in three women are allowed to go alone to the market, health center and outside the community (Kishor & Gupta, 2009).

These major differences between men and women across Indian society matter with regards to fossil-fuel subsidy reform: from how often public transport is used, to who decides what cooking fuel to use in the household, to the person who spends the most time cooking, to who lives with the effects of indoor smoke inhalation, and to the person who has access to any compensatory cash transfers linked to reform or broader social safety net payments. This paper explores how these gender differences relate to fossil-fuel subsidy reform.

## 1.2 Fossil-Fuel Subsidies

In fiscal year 2012-2013, 13.7 per cent of India’s budget expenditure went towards fossil-fuel subsidies (Global Subsidies Initiative [GSI], 2014a). Spending on fossil-fuel subsidies in India (US\$42.8 billion or 2.3 per cent of GDP (International Energy Agency [IEA], 2012) is almost double that of public expenditure on health (1.3 per cent) (World Bank, 2012b) and challenges that of government spend on education (3.2 per cent) (World Bank, 2011). Such subsidies increase with the depreciation of the domestic currency against the U.S. dollar and in light of persistently strong international oil prices. Yet 66 per cent of the population of India still relies on biomass for cooking energy needs (Organisation for Economic Co-operation and Development [OECD]/IEA, 2013). Fossil-fuel subsidies are of little benefit to this section of the population, considering that 48 per cent of India’s population are women and 68 per cent are rural (World Bank, 2012a). While the use of LPG in urban areas has increased to 64 per cent, penetration within rural areas is still low (at around 12 per cent): most people in rural areas use firewood or dung cakes for cooking (82 per cent) (Government of India, 2012). Indeed, subsidies have enabled wide penetration of LPG across rural and urban populations in other countries (such as Brazil), (OECD/IEA, 2006) penetration of LPG in rural India has been painfully slow. Subsidization of fossil fuels as a policy to bring about access to cleaner fuels for cooking has, by and large, failed the rural population of India.



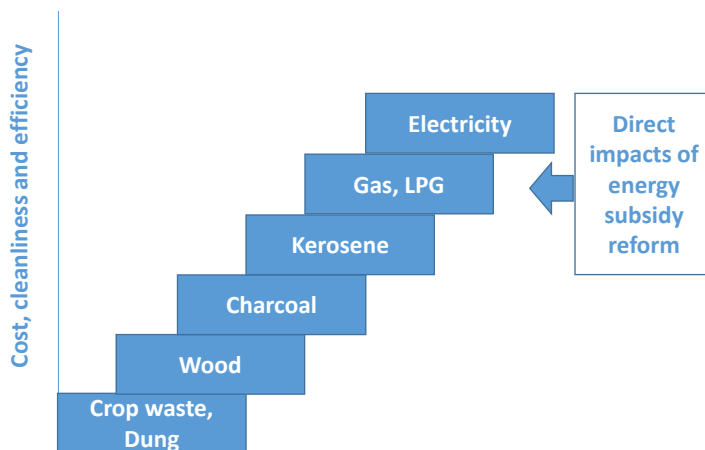
## 2.0 Fossil-Fuel Subsidy Reform and Women

This report is primarily concerned with understanding the impact of subsidy reform on women. The removal of energy subsidies will affect women in different ways. Huge differences in energy use and patterns exist between rural and urban areas of India, and between different states across India. For example, a rich urban woman in Delhi is more likely to feel the impact of LPG subsidy reform on her purse than a poor, rural woman in Bihar.<sup>1</sup> While these differences are raised in this report, its focus is on the impact of energy subsidy reform for poor, rural women.

The term “gender” implies socially constructed roles, behaviours, activities and attributes that society considers appropriate for men and women (World Health Organization [WHO], 2014a). Energy use in India is linked to many issues including national, state and local government policy (such as subsidy programs), household income, and the status and empowerment of family members within the household. This report looks at fossil-fuel subsidies and welfare impacts of reforms, but through a gender lens and from the perspective of the differing impact of reform on women compared to men.

### 2.1 Cooking Fuels (LPG)

Within India, a cleaner energy ladder for energy needs is often described using the diagram below. In reality, households use a mix of fuels depending on usage (water heating or cooking) and availability (backup or supplementary fuels) reflecting more of a stacking model (Ekholm, Krey, Pachauri, & Riahi, 2010; Masera, Saatkamp, & Kammen, 2000; The Energy Resources Institute [TERI], 2014). The term “clean” is based upon the effects of indoor air pollution on health, rather than on the carbon content of fuels or the level of “renewability” of different fuel types.



**FIGURE 1. THE “ENERGY LADDER” AND FOSSIL-FUEL SUBSIDY REFORM**

Source: Adapted from Duflou, Greenstone and Hammer (2008a) and Holdren and Smith, (2000).

In theory, the aim of government policy has been to encourage fuel switching up this ladder towards more “modern” energy fuels by subsidizing fuels such as kerosene and LPG to make them more attainable and attractive to poorer consumers at the bottom of the ladder. Therefore subsidizing kerosene and LPG could be important for women who might be making decisions around cooking fuel choices within the household. However, the impacts of fuel subsidy reform on women must be considered in relation to the considerable population who do not access fuel subsidies at

<sup>1</sup> Indeed, the different states subsidize LPG to different levels, around 900 rupees per capita (2012–2013) in Delhi and around 100 rupees per capita in Bihar (GSI, 2014b).



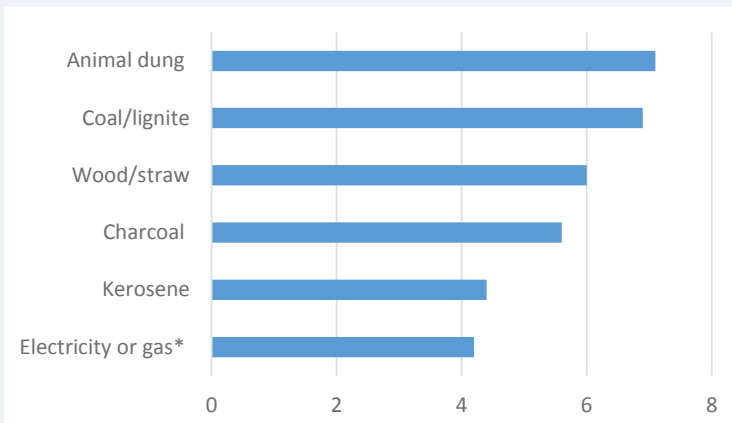


all for cooking. Indeed, 66 per cent of India’s population (or 818 million people) live without access to clean cooking facilities and rely on biomass (OECD/IEA, 2013). While biomass is a renewable form of energy, in its traditional form it has extremely harmful health (and significant time) consequences for women engaged in cooking, collection and creation of such fuels (see Box 1). Many agree that energy subsidies as a policy tool for improving energy access across India for cooking have failed to reach rural India, particularly regarding LPG. There are many reasons for this. For example, Ekholm, Krey, Pachauri, & Riahi (2010) observe that “subsidies alone may be inefficient for promoting modern fuels, as the steep upfront investment costs are not affected” and that start-up includes the cost for a cylinder with a deposit fee and a cash outlay for refill presenting a “serious barrier to the uptake and regular use of LPG by low-income households” (United Nations Development Programme [UNDP]/Energy Sector Management Assistance Program [ESMAP], 2003, p. 20). More generally, the failure to enable rural access to modern energy is put down to a “lack of integrated policy framework, division of the energy sector across multiple agencies, overemphasis on the grid, misdirected subsidy regimes, ineffective implementation and resource constraints’ (Balachandra, 2011), but it may also be linked directly to a “failure to address the gender dimensions of energy poverty” (Pachauri & Rao, 2013).

**BOX 1. DEADLY COOKING FUEL**

Around two thirds of India’s population (818 million people) cook with open fires and stoves that burn biomass (dung, wood, charcoal, and crop waste) (OECD/IEA, 2013; Government of India, 2013). The World Health Organization report that four million people die prematurely every year from illnesses linked to household air pollution from cooking with solid fuels, and that 50 per cent are children under the age of 5 (WHO, 2014). In Orissa, India, research found that indoor air pollution shows a significant health threat in rural households where households rely on traditional stoves for cooking, with one third of adults and half of all children experiencing symptoms of respiratory illness over the survey period (Duflo, Greenstone, & Hanna, 2008b). The study found a strong correlation between using a stove with cleaner fuels and having better respiratory health, but the findings also pointed up other factors that could matter such as empowerment of women and income levels (Duflo, Greenstone, & Hanna, 2008b, p. 4):

This makes solid fuels the second most important environmental cause of disease after contaminated waterborne diseases (Bruce et al., 2006) and the fourth most important cause of overall excess mortality in developing countries after malnutrition, unsafe sex, and waterborne diseases (Bruce et al, 2006).



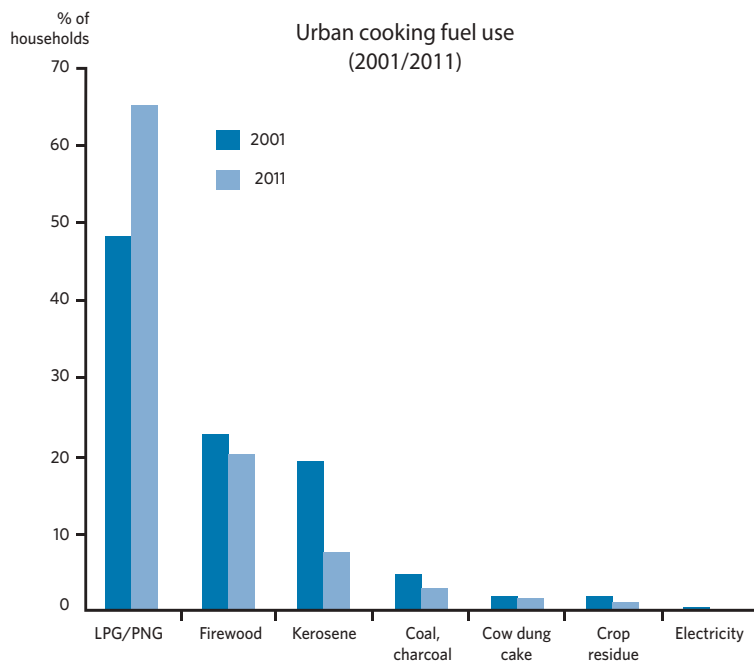
**FIGURE 2. COOKING FUEL AND THE PERCENTAGE OF CHILDREN AGED UNDER FIVE WITH SYMPTOMS OF ACUTE RESPIRATORY INFECTION (ARI), INDIA 2005-06**

Source: International Institute for Population Sciences (IIPS) and Macro International, (2007).

\*Gas includes LPG, natural gas, and biogas. ARI symptoms include a cough accompanied by short, rapid breathing which was chest related and is considered a proxy for pneumonia.

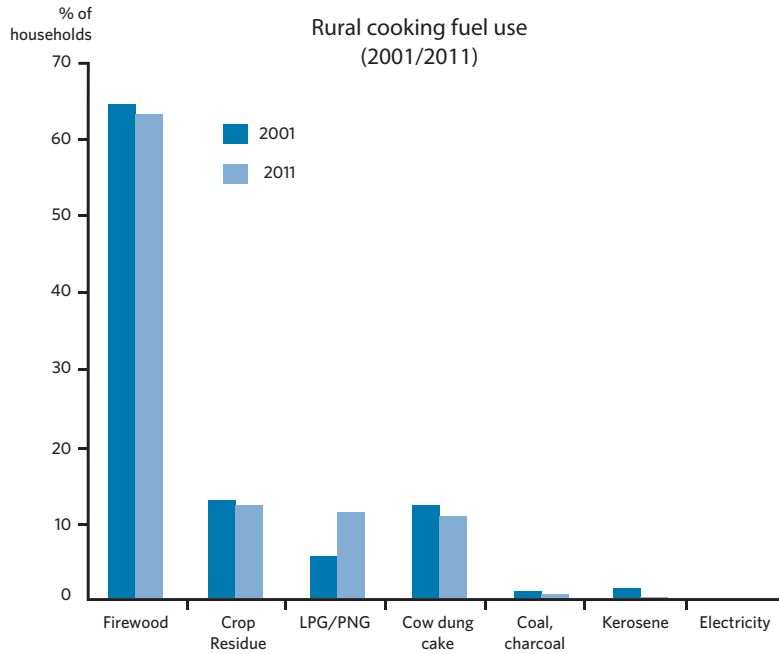


The centrality of biomass (i.e., firewood and dung) for cooking should not be underestimated or ignored. Almost 85 per cent of rural households are dependent on traditional biomass fuels for their cooking energy needs (Government of India, 2013) with 76.3 per cent of rural households dependent on firewood (Government of India, 2012). In urban areas the picture is different, and dependence on firewood for cooking has fallen from 30 per cent (1993-1994) to 17.5 per cent (2009-2010), while the use of LPG has more than doubled, from under 30 per cent (1993-1994) to 64.5 per cent (2009-2010) (Government of India, 2013). Kerosene is also used as a cooking fuel in urban areas. This growth in the use of LPG in urban areas has been countered by a reduction in the use of kerosene, followed by firewood and chips (Government of India, 2013). In rural areas there has also been an increase in the use of LPG from 2 per cent (1993-1994) to 11.5 per cent (2009-2010). This rise in the use of LPG in rural areas is reported at being at the expense of dung cake, followed by kerosene and other sources (Government of India, 2013). Figure 4 illustrates the importance of biomass for cooking across rural India, where it makes up 90 per cent of consumption (Srivastav, Goswami, Diljun, & Chaudhury, 2012).



**FIGURE 3. PRIMARY REPORTED COOKING FUEL (URBAN) (2001/2011)**

Source: Census of India (2002, 2012), cited in Patra (2012).



**FIGURE 4. PRIMARY REPORTED COOKING FUEL (RURAL) (2001/2011)**

Source: Census of India (2002, 2012), cited in Patra (2012).

**Current situation in LPG subsidy reform:** The Indian Kelkar Committee Report (Kelkar, Rajaraman, & Misra, 2012) recommended the elimination of LPG subsidies over a period of three years. LPG subsidy distribution across India was at one point restricted and then later relaxed. The subsidy (for domestic LPG was around INR40,000 crore for 2012/13 (GSI, 2014b). Direct subsidies to LPG amounted to INR1,989 crore for 2013-2013 (US\$0.37 billion) and subsidies as a result of under recovery from oil marketing companies totaled INR39,558 crore (US\$7.27 billion) (GSI,2014b). In September 2012 the government introduced a cap on the consumption of subsidized LPG cylinders, allowing households with an LPG connection to purchase a maximum of six cylinders per annum at subsidized rates, although this was increased to nine cylinders in January 2014 following political opposition. More recently, the government announced a further increase to 12 cylinders per household per annum effective April 2014 (GSI, 2014b).

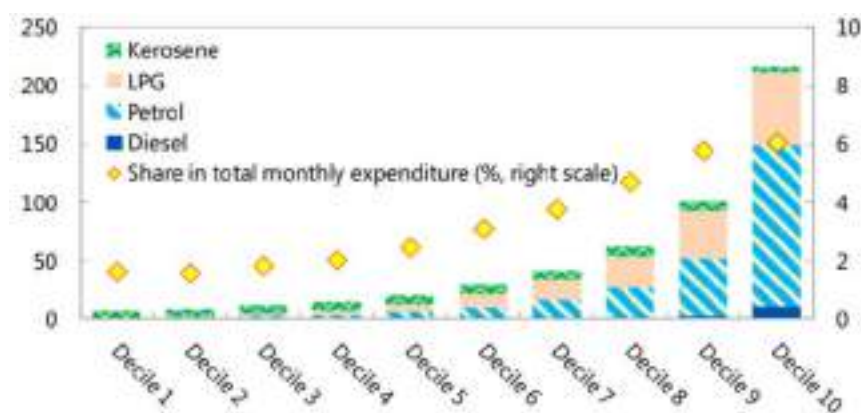


### **BOX 2. WELFARE IMPACTS OF SUBSIDY REFORM GLOBALLY**

In developing countries, the rich tend to benefit disproportionately from fossil-fuel subsidies. Research has found that “over 97 out of every 100 dollars of gasoline subsidy ‘leaks’ to the top four quintiles” and that “[o]n average, the top income quintile received about six times more in subsidies than the bottom quintile” (Arze Del Granado, Coady, & Gillingham, 2010, p. 13, p. 11). This International Monetary Fund (IMF) research reviewed 20 countries including India and examined the direct impacts of increasing prices on cooking, heating, lighting and private transport fuels, and the indirect impacts on other goods and services such as public transport or food requiring a higher energy input. This research found that over 80 per cent of petrol subsidies accrue to the top two quintiles of society: for diesel and LPG this figure was 65 and 70 per cent. While the benefits of kerosene subsidies accrue more uniformly across income groups, there is still substantial leakage of benefits to higher income groups. An increase in prices does have a negative impact on welfare, although this decrease is approximately neutral across income groups (although changes in kerosene prices can have a significant welfare impact on the poor). Increasing fuel prices by US\$0.25 per litre results, on average, in an increase in the cost of living (i.e., of the consumer price index) of around 6 per cent. Anand, Coady, Mohommad, Thakoor, and Walsh (2013, p. 4) observe that “[a]bout half or more of the increase in the cost of living was due to the indirect effect on the prices of other goods, emphasizing the importance of recognizing the large intermediate use of fuel products (especially diesel) by firms and the transport sector.” There is substantial leakage of subsidy benefits to top income groups, implying that “universal fuel subsidies are an extremely costly approach to protecting the welfare of poor households” (Arze Del Granado, et al., 2010, p. 13). Investments into safety nets are far more efficient at reaching the poor than fuel subsidies. The IEA also found that, although fossil-fuel subsidies are intended to improve access to modern energy services for the poor, only 8 per cent of the subsidy granted typically reaches the poorest income group (OECD/IEA, 2011).

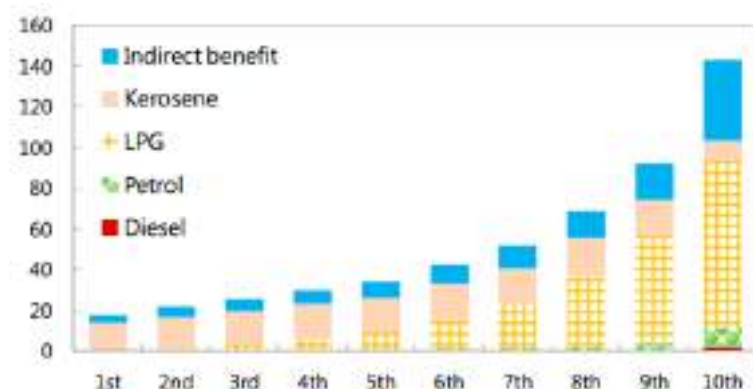
**Impact of LPG subsidy reform:** As is the case globally, in India “[m]ost of the benefit from price subsidies goes to higher income groups, which consume greater amounts of fuel” (Anand, et al., p. 9) with the bottom and top two income deciles allocating around 1.6 per cent and 6 per cent of total expenditure to fuel consumption respectively (see Figure 5). The paper explains that “[s]ince lower income groups receive a very small proportion of total fuel subsidies, it should therefore be possible to both fully protect these lower income groups from the adverse impact of fuel subsidy reform while simultaneously generating substantial net fiscal savings” (Anand et al, 2013, p. 13). Other studies find that the effect of liberalizing LPG prices would likely fall less on the poor than on those more able to afford higher prices for cooking fuel (Lahoti, Suchitra, & Goutam, 2012). From the figure below and information presented it is likely that direct impacts of LPG subsidy reform would have more impact on the wealthier parts of society than the poor. However, such welfare information by poverty group tells us little about impacts of LPG subsidy reform on women: national raw household survey data provides no gender information in relation to energy use.





**FIGURE 5. COMPOSITION OF HOUSEHOLD FUEL EXPENDITURE BY INCOME GROUP, 2009-10 (RUPEES PER CAPITA PER MONTH)**

Source: Anand et al. (2013). Reprinted with permission.



**FIGURE 6. WELFARE LOSS FROM SUBSIDY REFORM BY INCOME GROUP (RUPEES PER CAPITA PER MONTH)**

Source: Anand et al. (2013). Reprinted with permission.

### Direct Benefit Transfer and LPG

A scheme has been piloted to pass the LPG subsidy directly as a cash transfer to beneficiaries via bank accounts (linked to the national social security Aadhaar program and a unique identification) and on the basis of purchase of cylinders at market price. The scheme started in 20 districts in June 2013 and aimed to cover over 100 by Phase Six; however, it was suspended in January 2014. Forthcoming research from TERI (Sharma, 2014) assessed the impact of the Direct Benefit Transfer scheme for Liquefied Petroleum Gas in Mysore and found that although cylinders rose to the full price, and the number of cylinders sold decreased, there were multiple problems. Respondents to a survey found that many were unable to receive the subsidy (almost 40 per cent) finding that the subsidy was not paid into the linked bank account. The majority of those surveyed (64 per cent) strongly disagreed that the scheme was preferable to the LPG fuel subsidy in that the scheme was poorly implemented, led to higher prices and was overly complicated. There were other observations from this study with particular insight for women and around impacts that could be better managed given the switch from a fuel to a cash transfer subsidy:



- For this scheme the name of the bank account holder and the name of the LPG connection must be the same to receive the subsidy. Almost all LPG connections were found to be in the name of the male head of house. Often bank accounts are also in the name of the male wage earner. Women in the survey revealed that it was difficult to access the subsidy since it was withdrawn (from the bank) by their husband, even though it might well be the woman who is responsible for household expenditure. Some women therefore adjusted household expenditure to be able to pay for the full price of the cylinder.
- Subsidies are deposited into bank accounts, and access to banks and ATMs posed a problem for a significant number of participants, especially those from rural areas who explained that banks were far away and inconvenient. Rural residents faced a much longer journey to withdraw the subsidy— this could sometimes take up to a whole day. Some women would visit the bank branch to check if the subsidy had been deposited and then the male wage earner of the household would visit to withdraw the money.
- Participants also noted that they preferred to treat the subsidy as savings and not withdraw the funds, forcing some households to cut spending elsewhere (e.g., on foodstuffs). Yet most respondents “strongly disagreed” that there had been a need to decrease food expenditure as a result of the scheme.
- Some participants explained that they controlled their consumption by shifting some of their “smaller cooking” (such as brewing tea) to alternative fuels like firewood or coconut shell fibre. In other words some women had slipped down the energy ladder and at times had replaced LPG with biomass.

For cash transfer schemes to work to replace LPG subsidies in the future (for either LPG or kerosene) better financial inclusion and access to bank accounts is necessary. New LPG connections should be made in name of the female head of the household, along with banking access, thereby providing better access to cash transfers stemming from LPG subsidy reform. Increasing LPG prices will lead to some switching in cooking fuels—these changes must be understood and managed as far as possible. The cap in the number of subsidized cylinders could help, in that large LPG users are targeted while smaller users are protected, although, as explained, this cap has been loosened upwards to 12 cylinders. As the Direct Benefit Transfer scheme was designed it shifted the payment but does not delink the receipt of subsidy from the use of LPG, and it does not target beneficiaries (therefore retaining the highly regressive nature of the existing LPG subsidy). For the time being, the GSI finds “no case for the introduction of Direct Benefit Transfer for LPG on the grounds of equity, administrative efficiency or fiscal responsibility” (GSI, 2014b, p. 1).

### **BOX 3. LPG SUBSIDY REFORM AND WOMEN**

- Two thirds of people in India use biomass for cooking, and it is women who spend time gathering fuel and cooking—LPG subsidies do not benefit this part of the population.
- It is likely that the direct price impact of LPG subsidy reform on rural women and on poor women would be small.
- It is likely that there would be a direct impact of LPG subsidy reform in urban areas and on wealthier women. Working to prevent women moving back down the energy ladder is key.
- Where cash transfers to replace fuel subsidies have been piloted it is clear that women are at a disadvantage and have been unable to access subsidies. Financial inclusion and access to bank accounts and LPG connection in women’s names and for women will be key if such schemes aim to empower women.



## 2.2 Lighting Fuels (Kerosene)

The issue of fuel subsidies and lighting for women is primarily linked to the affordability and access women have to electricity and kerosene. Although kerosene is also used for cooking (particularly in urban areas with a wick stove or a high-pressure stove), it is used by many for lighting, especially in rural areas. A quarter of India's population (roughly 306 million people) do not have access to electricity (OECD/IEA, 2013), and people use kerosene for lighting. Kerosene is a useful fuel for the poor in that it can be bought in small quantities and it is easy to transport. Subsidy reform of kerosene would directly impact the poor and poor women. Access to electricity, on the other hand, could have transformational change on women's lives, not only for lighting but to power water pumps, household appliances such as fridges, TVs, phones and electrical labour-saving devices.

### BOX 4. LACK OF ELECTRICITY

18 per cent of the world's population (1.3 billion people) lack electricity (IEA, 2013). Sub-Saharan Africa and developing Asia account for 95 per cent of the global total. Those without electricity are using other sources for lighting, like kerosene, which can also have health impacts and risks such as from burns and other injuries. A lack of access to electricity impacts women in many ways, from poor health care facilities, to lack of refrigeration to keep food and medicines fresh, to restrictions on educational and economic activities due to a lack of lighting and power. Around the globe, different fuels affect household health in different ways, so fuel switching can make a big difference—either positively or negatively—for health. Access to electricity could have positive, life-changing impacts for women.

**Current situation in kerosene subsidy reform:** The reduction in Public Distribution System (PDS) kerosene consumption has continued in the past year, as the government has retained its policy of restricting supply. As in the LPG market, there has been no change in the pricing of subsidized kerosene as part of the recent package of reforms (TERI, 2014). There have been attempts to computerize the PDS database to control subsidy leakage and diesel adulteration (a problem that has become even more significant as diesel prices have risen). Cash transfers like those implemented under the Direct Benefit Transfer scheme for LPG have also been proposed for distributing kerosene subsidies; such a scheme has already been piloted in Alwar district in Rajasthan (TERI, 2014), see below.

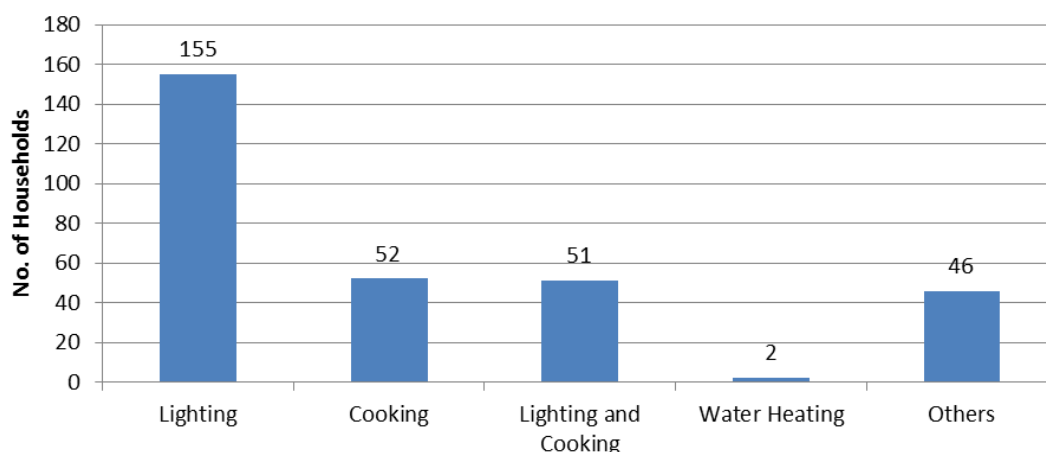
**Impact of kerosene subsidy reform:** From Figure 5 it is clear that kerosene is a small (but important) cost for the bottom two quintiles of society, at 1.6 per cent of total expenditure (Anand et al., 2013). Research has found that “studies that examine kerosene generally find that kerosene subsidies provide income benefits to the poor, and that kerosene use tends to first increase and then decrease with income” (Rao, 2012, p. 36), and that kerosene subsidies are relatively better targeted (Coady, Grosh, & Hoddinott, 2004). But that “it is well known that suppliers and distributors divert 40–66% of kerosene allocated for states to other lucrative markets such as transportation, forcing some households to purchase kerosene in the black market” (Rao, 2012, p. 36). Research has shown that in actual fact in some parts of India (Maharashtra) adulteration is such a problem that “households purchase over 40%, and in urban areas over 50%, of their consumption from secondary (black) markets” (Rao, 2012, p. 37). Furthermore, “[h]ouseholds that cook with black-market kerosene pay approximately the same fuel price as LPG” (Rao, 2012, p. 39). Overall, the research concludes that for urban households, income relief from kerosene subsidies amounts to about 1–5 per cent of monthly expenditure, especially where access to biomass and affordable LPG is lacking—therefore reform and removal of subsidies could lead to income shocks of between 1–5 per cent and at worst a doubling of households' cooking budgets. For rural areas of Maharashtra, most households that use kerosene for lighting receive income relief of 0–0.4 per cent, much smaller amounts. For every rupee of income transferred to the poor, six rupees has to be spent by the government (Rao, 2012).



**Direct transfers for kerosene:** While the use of LPG is increasing, the allocation of kerosene has declined over the years due to improved access to LPG and electricity across most states. There has been a decline in use of kerosene (in terms of absolute volume) by as much as 20 per cent since 2009/10 in states such as Gujarat, Himachal Pradesh and Kerala. Delhi has experienced notable declines in use where the allocation fell by nearly 45 per cent linked to the state government’s declaration towards making Delhi a kerosene-free city (Lok Sabha, 2012; 2013a). A recent TERI survey conducted for IISD (TERI, 2014) evaluated a pilot kerosene-replacement cash transfer scheme that has been running in Kotkasim, Alwar for the last two years, organized through the Government of Rajasthan with support from the Ministry of Petroleum and Natural Gas (MoPNG) and the Government of India. To date, this is the only experiment with cash transfers for PDS kerosene in India, although there has been discussion on expanding the program.

Under the scheme, every ration cardholder is allocated 3 litres of kerosene per month at the market rate, and the subsidy is transferred to the bank accounts of card holders on a quarterly or monthly basis (that is, beneficiaries of the scheme must have an operating bank account linked to the scheme). Sales and consumption of kerosene have fallen by more than half since the start of the pilot scheme, and this has been mostly driven by a reduction of purchase of kerosene by households. Leakages in the supply chain due to non-household use and an over-collection of subsidized kerosene (e.g., one household collecting on multiple ration cards) were ended.

The survey covered 160 households across four villages: over 80 per cent of respondents were males. Households use kerosene as part of the fuel mix for both cooking and lighting needs, e.g., kerosene is sprayed on wood to help light a fire and used for cooking alongside biomass and LPG, as well as alongside the use of regularly available electricity for lighting, reinforcing the practice of households using a stacking model and multiple fuel types to meet household needs (see Figures 1 and 7).



**FIGURE 7. USE OF KEROSENE BY HOUSEHOLDS WITHIN KOTKASIM, ALWAR.**

Source: TERI (2014).

The main issue arising for gender from this study and of switching the subsidy from kerosene fuel to a cash transfer subsidy is primarily, again, around the ability of women to access the subsidy through the banking system. While there were efforts to publicize the scheme and get households to open bank accounts prior to the scheme in order to access the cash transfer, it is unclear in whose name bank accounts are held. Given the differences in India





between women's (26.5 per cent) and men's (43.7 per cent) access to bank accounts (Demirguc-Kunt & Klapper, 2012; Appendix C), this is likely to be a major issue for women. The survey identified other problematic issues for households regarding accessing cash subsidies, such as a lack of banking facilities in the village area and the distance to the bank, uncertainty in receiving the subsidy into accounts, non-cooperation from bank officials putting households off, an expanded customer base at the banks and over-burdening of bank staff, and long queues at the bank. So even if women do have bank accounts, actually getting to banks and withdrawing the subsidy could also be a problem. Furthermore, PDS dealers lost out, and 37 per cent of survey respondents reported that initially the dealer had linked the sale of rationed items such as wheat, tea, salt and spices with mandatory purchase of certain levels of kerosene. Although this practice no longer takes place, it could initially have had a negative impact on women over men in terms of access and affordability to purchased food items at the start of implementing a cash-for-fuel subsidy scheme.

The survey and report concludes that financial inclusion is important and the availability and extension of banking facilities is necessary in order to enable cash transfers to work. Furthermore the report highlights that the banking business correspondent model, (discussed at the state level with regard to the Aadhaar mechanism) could provide an effective way to address these concerns. However, in "this too, appointing an appropriate person to be a correspondent and ensuring their accountability would be crucial in successful implementation of the scheme" (TERI, 2014). Again, as with LPG, since women undertake cooking and manage household resources, the appropriate person to receive cash for fuel subsidies might rather be the female head of the household.

#### **BOX 5. KEROSENE SUBSIDY REFORM AND WOMEN**

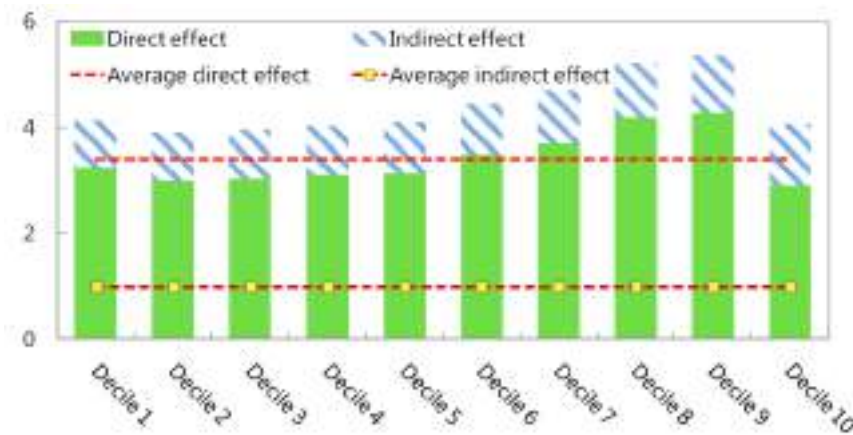
- Kerosene subsidies are a very inefficient way of redistributing income, especially to poor people and to poor women.
- Removal of kerosene subsidies would have a small impact on rural women who use kerosene as a lighting fuel, and without access to electricity.
- Kerosene subsidy reform would have a more noticeable impact on urban women using kerosene as a cooking fuel, and without access to LPG or biomass.
- Subsidy schemes replacing kerosene subsidies with cash transfers via bank accounts must recognize the lower numbers of women who have bank accounts as compared to men, and therefore the lower levels of access women would have to this cash transfer. Reform compensation schemes must be directed to the users of kerosene in the household, mostly women. This must be through bank accounts or other models, held in women's names and accessible by women.
- Indirect impacts of kerosene subsidy reform on women over men, such as restricted access to other food stuffs from PDS dealers, should be understood and managed.
- Benefits of LPG for kerosene programs could assist women, who spend more time than men cooking, especially from the perspective of cleaner fuels.
- Access to electricity over kerosene for lighting could be transformational for women, opening up access to power for wider energy needs and uses.

## **2.3 Transport (Diesel)**

The indirect effects of fossil-fuel subsidy reform include increasing prices for other goods and services often linked to increasing transport costs due to increases in diesel prices, (i.e., public transport fares, and food prices linked to the cost of transporting food). Papers exploring the effects on welfare of price increases show a negative impact,



although the decrease in welfare is approximately neutral across income groups. Globally, the indirect impact of reforming subsidies is significant and estimated to be around half of the impact (Arze Del Granado, et al., 2012). Specific research for India finds the indirect impacts to be much smaller. Anand et al. (2013, p. 13), calculated the welfare impacts of subsidy reform in India (including indirect impacts) using input-output tables from 2003/04 and based on an increase in diesel price only. Overall research finds that “eliminating fuel subsidies would decrease household real incomes (or, equivalently increase the CPI) by around 4 percent” and that indirect impacts have a smaller effect on welfare than the direct impacts of price increases in LPG and kerosene. Indirect impacts are found to be similar across income groups and yet “[w]hereas higher food prices dominate the indirect impact for lower income groups, higher non-food prices dominate for higher income groups” (Anand, et al., 2013, p. 13). In other words, reform of subsidies to diesel in India will have indirect negative welfare impacts of increases in food prices for poor people and increase transport prices for wealthier people.



**FIGURE 8. DISTRIBUTION OF WELFARE IMPACT OF FUEL SUBSIDY REFORM (PERCENTAGE OF TOTAL HOUSEHOLD CONSUMPTION)**

Source: Anand et al. (2013). Reprinted with permission.

Fossil-fuel subsidy reform will impact both men and women. However, women are likely to be the people managing food resources within the household, and IMF research finds that the indirect negative welfare impacts of subsidy removal on diesel impacts the poor through higher food prices, and although this is small (a quarter of the impact of fuel subsidy reform) could likely affect women more than men. The time-use survey found that women spend less time travelling (24 minutes per day) than men (54 minutes) and so indirect impacts via public transportation prices could have smaller effects on women than men (OECD, 2014).

**BOX 6. INDIRECT IMPACTS OF FOSSIL-FUEL SUBSIDY REFORM ON GENDER**

- There are potential indirect impacts on food prices to poor rural women due to increasing the price of diesel and therefore transport costs, yet changes in public transport prices are more likely to affect men than women.
- Measures should ensure poor women have cash to manage indirect impacts such as increases in food or water costs through functioning cash transfer and social safety programs targeted at poor women.



## 2.4 Water (Electricity)

Subsidies towards electricity have impacts for rural farmers and for women in terms of access to drinking water and water for irrigating crops, and therefore access to food. Only one-third of India's irrigated lands have access to surface water, and the remaining two thirds must extract groundwater for irrigation and so rely heavily on electricity for pumping. Electricity administration at the state level has been provided at a highly subsidized rate, often unmetered. Agriculture consumes about one fourth of India's electricity, but contributes as low as 7 per cent in terms of revenue, leaving state utilities in difficulty. Where reform has taken place through rationing, splitting agricultural and non-agricultural rural consumers and metering (Gujarat and West Bengal) there have been improvements, with schools, and hospitals gaining 24-hour access to electricity, and with farmers receiving limited hours of higher quality supply. Yet in both cases water buyers have lost out (small, marginal farmers have lost income). Since reforms in these states, pump owners have reduced the time spent operating pumps and therefore levels of water being pumped and sold to others. Reforms in electricity subsidization mean that incentives to pump and sell water have been reduced. Water prices in West Bengal have increased by between 30 to 50 per cent after reforms, even though annual electricity bills have declined. Wealthier farmers have reduced their electricity bills and increased profits from selling water. Water buyers face problems of advance payment and unavailability of water at desired times, reducing equity in access to water. Electricity subsidy reform is not only linked to agriculture and irrigation but has knock-on impacts on groundwater scarcity, rural poverty, food security and access to water. Reforms have thus come at a cost for water buyers, i.e., poorer farmers who cannot afford to own irrigation pumps (Swain & Mehta, 2014).

There are nearly 20 per cent more women (65 per cent) than men (46 per cent) working in the agricultural labour force (Huyer & Halhkin, 2013); therefore, changes in access to water for irrigation of small farms are likely to have a heavier impact on women than on men. A number of proposals have been made to tackle the problem, including expanding surface irrigation systems that capture and retain surface rainfall (e.g., revitalizing India's existing network of canals) and reducing dependence on ground water and on electricity, as well as efforts to recharge groundwater and raise water tables. Agricultural practices could use water and electricity more efficiently, e.g., through crop diversification, crop choice and use of "[c]rop residues, both field and process" as mulch, because "burning them in the field reduces soil moisture content" (Swain & Mehta, 2014, p. 7). The Indian government itself is now subsidizing solar pumps (86 per cent) that do not require expensive diesel fuel; the aim is to move 200,000 pumps across to solar power in the next five years at a cost of US\$1.6 billion—the subsidies are to be linked to drip-feed irrigation technology (Pearson & Nagarajan, 2014). Yet, women seem practically caught in a difficult situation with dung cakes and residue being used for fuel (rather than fertilizer) as a fact of life for huge numbers of women across India. Swain & Mehta (2014, p. 8) conclude that "agricultural electricity pricing reforms could be useful, but only after taming the water demand." Differential price incentives are needed that are directed at low- and high-volume consumers of electricity, as well as targeted transfers of subsidies aimed at poor farmers.

### **BOX 7. ELECTRICITY SUBSIDY REFORM AND WOMEN**

- Given the unintended impacts of state-level reform of electricity subsidies i.e. increased water prices, and reduced access to water for the poor, it is important to understand and anticipate impacts of electricity energy reform on women. More women are agricultural labourers than men and an increase in water costs could affect women more heavily.
- Undertake reform alongside broader infrastructure and practice changes: in this case agricultural techniques and water systems, introduction of solar pumps etc.
- Recognize the vulnerability of women within this water-food-energy-poverty nexus. Subsidy reform will require wider governmental support or programs (e.g., cash transfers, infrastructure etc.) to help the situation for women.



## 3.0 Tools for Understanding Impacts of Energy Policy Changes on Women

When analyzing the impact and opportunities of fossil-fuel subsidy reform, this report has considered reform through a gender lens, from a welfare perspective and access to daily needs such as fuel for cooking, lighting, food, water and transport. This approach helps us to think through potential impacts of policy change, but by no means provides a complete picture of the interactions between fossil-fuel subsidy reform and gender. This section looks at the data and the tools that would be needed in order to help more fully understand interactions between energy policy changes and gender.

### 3.1 Household and Time-Use Survey Data

Many studies point to the lack of data and research linking gender and energy policy. Household data for India is based on National Sample Survey (NSS) Office household surveys that take place in rounds. Information for impacts of fossil-fuel subsidy reform is often based on surveys such as the NSS 66th Round *Energy Sources of Indian Households for Cooking and Lighting* from 2009–2010 (Government of India, 2012). Surveys provide a great deal of information around changing and existing patterns of energy use across India. Information is disaggregated across rural and urban households, across different states, by occupational type, by social group and by income bracket. However, there is no reference to women or gender within the survey. Households are treated as units, but it is unclear from whom information is elicited about the household. There is a focus on primary sources of energy fuels for cooking and lighting, rather than an understanding of the mix of fuels a household employs to meet energy needs for cooking and lighting. There is no sense from the survey as to who bears responsibility within the household for cooking and lighting activities and choices.

Other official surveys do deal specifically with women and may have a link to energy use and the impact of subsidies. For example, the NSS 66th Round also undertook a survey called *Participation of Women in Specified Activities along with Domestic Duties* (Government of India, 2013). This has some interesting observations that include, for example, the fact that the single domestic activity that the most rural females (aged 5 or above) are involved in was the preparation of cowdung cakes (62 per cent)—slightly more than the collection of firewood, 60 per cent). Yet from the household energy survey, only 6.3 per cent of rural Indians are recorded using dung cake as a primary source of energy for cooking. Research around domestic chores such as collecting wood and water does provide insight into the lives of women, and yet even this survey—specifically about women—does not address gender questions. There is no sense of men's engagement in domestic activities, nor those women not engaged in domestic duties, nor the balance between men and women in domestic activities aimed at energy and fuel collection and creation. The survey does not capture the time involved in performing such tasks or the value of such unpaid work. However, it does present a picture of many females (and many young girls, for that matter) heavily engaged in domestic chores. Other national surveys (such as the National Health Survey of India) do survey gender and health outcomes. A good example of NSS data and gender is provided with regard to the National Family Health Survey (Kishor & Gupta, 2009), with data collected for both male and female participants as part of the 2005–2006 survey and then a separate gender analysis.

In the past, an initial time-use survey for India (2000) captured time allocation for collecting fuel wood. The report covered six major Indian states and covered 18,591 households. There seems to have been no further time-use survey since 2000. Analysis of the time-use survey for the UN (Pandey, 2000) found that women spent almost 15 hours





per week cooking compared to men’s (almost) 1 hour. The overall issue is a lack of household and time-use survey data to understand gender issues within India, and even less raw data to connect gender and energy issues together.

Table 1: Weekly average time spent (in hours) on activities

ACTIVITIES	COMBINED STATES	
	MALE	FEMALE
Cooking	0.52	14.93
Cleaning household	0.21	4.55
Cleaning utensils	0.1	3.39
Washing and mending clothes	0.18	2.71
Shopping	0.59	0.64
Pet care	0.03	0.04
Care of children	0.32	3.16
Teaching own children	0.16	0.19
Accompanying children to places	0.08	0.09
Care of sick and elderly	0.04	0.19
Supervising children	0.28	0.78
Care of guests	0.03	0.04

Source: Pandey (2000).

**BOX 8. HOUSEHOLD AND TIME USE SURVEY DATA AND GENDER**

- Energy household survey data is not broken down by gender but is broken down by other classifications.
- National time-use surveys linked to gender and energy could hold insights, the first and only national survey was held in 2000.
- Studies focused only on women may provide insights, but not with regard to gender relationships.
- Knowing what is really happening on the ground, and what might happen with policy change, between men and women around energy use, switching, and subsidies is made more difficult without detailed data; a good example for gender analysis of national survey data is the National Family Health Survey.

### 3.2 Gender-Responsive Budgeting and Analysis

Gender-sensitive budgets require “identifying and reflecting needed interventions to address gender gaps in sector and local government policies, plans and budgets” as well as aiming to “analyse the gender-differentiated impact of revenue raising policies and the allocation of domestic resources and Official Development Assistance” (UN Women, 2014). Since 2005, many G20 countries (including India) have undertaken gender-responsive budgets.



#### **BOX 9. WHAT ARE GENDER-SENSITIVE BUDGETS?**

- 'The budget is the most important policy tool of government because, without money, government cannot implement any other policy successfully.
- A gender-sensitive budget ensures that the needs and interests of individuals from different social groups are addressed.
- Gender-sensitive budgets are not separate budgets for women or men. Instead, they bring gender awareness into the policies and budgets of all agencies.
- Gender-sensitive budgets are not about 50 per cent male: 50 per cent female.
- Gender budget work combines technical knowledge for equitable policymaking with advocacy and organising to engage with powerful interests and institutions.
- Gender-sensitive budgets recognise the ways in which (mainly) women contribute to the society and economy with their unpaid labour in bearing, rearing and caring for the people in the country.'

Three categories of gender budget analysis

- Category 1: Targeted gender-based expenditures of government departments
- Category 2: Equal employment opportunity expenditure on government employees
- Category 3: General / mainstream budget expenditure judged on its impact on women and men, girls and boys

Source: UNDP (2005).

Gender budgeting was institutionalized within the Indian Ministry of Finance in 2005. The Indian government has both a gender budget manual and handbook to guide government departments through the process (Ministry of Woman and Child Development Government of India 2007) and the Ministry of New and Renewable Energy (MNRE) has a Gender Budgeting Cell. A gender analysis of the Twelfth Five-Year Plan (Mehta, Eapen, & Mishra, 2012) including a section on energy is revealing:

the focus is on ensuring that energy requirements of the major contributors to the GDP—industry, transport, agriculture, etc.—are met so that these sectors do not constrain achievement of the 9 per cent targeted GDP growth rate. In achieving these goals the objective is to keep a check on the import bill of fossil fuels through increased energy efficiency of these (mainly imported) fuels and thus reduce the energy elasticity of various activities. (Mehta, Eapen, & Mishra, 2012, p. 21)

The gender analysis identifies a serious omission: “[t]here is no mention of the energy use that is of vital concern to the majority of Indian women, especially rural women, i.e., fuel for cooking meals consumed by men, women and children each day” (Mehta, Eapen, & Mishra, 2012, p. 21). There is no inclusion in the plan of efforts to meet the needs of women who must either collect firewood or create fuels and nothing on the hazards associated with cooking. Although there is recognition of the need for universal access to power and the electrification program there is no specific commitment in the plan to achieve this (Mehta, Eapen, & Mishra, 2012). Some note that “India seems to be trapped in a paradox: while on the one hand it has taken several steps towards gender responsive budgeting, on the other budgetary allocations for promoting gender equality and women’s empowerment has actually registered a decline” i.e. the small budget aimed specifically at women’s development efforts (0.2 per cent of total Gross Budget Support for the Twelfth plan) (Jhamb, Mishra, & Sinha, 2013, p. 38).



#### **BOX 10. 2008 GENDER AUDIT OF NATIONAL ENERGY POLICIES**

In 2008, IRADe-ENERGIA undertook a major study and gender audit of national energy policies, based on the programs of the Ministry of New and Renewable Energy, (ENERGIA & IRADe, 2009). The report found that the “11th five-year plan (2007-2012) expects to invest more than \$100 billion in the energy sector, including coal, oil, hydropower and other renewables and nuclear—but less than 2 per cent of this may go towards alleviating the drudgery suffered by women and children” (ENERGIA & IRADe, 2009, p. x). One of the key findings relevant to fossil-fuel subsidy reform and gender was around inter-ministerial coordination for the provision of affordable and sufficient energy for all. Energy policy in India is managed across a number of institutions including the Ministry of Power, Ministry of Petroleum and Natural Gas, Ministry of Coal and the Ministry of New and Renewable Energy. Access to energy is also part of the remit of other Ministries such as Rural Development, Environment and Forests, Agriculture and the Ministry of Women and Child Development. The IRADe-ENERGIA report found that inclusion of gender issues within energy policy will require coordination and an inter-ministerial set-up, involving the various energy ministries and other ministries with stakes in women’s wellbeing and empowerment would help ensure that gender concerns are not overlooked. The lack of coordination combined with negligible accountability from the above-mentioned ministries. This results in minimal interest from them and a lack of investments directed at addressing gender concerns in the energy sector, which leads to a continued perpetration of gender based implications such as negative impacts on women’s health and well-being and also lack of economic development for women and gender inequalities. (ENERGIA & IRADe, 2009, p. xii)

Regarding subsidies and women, the report highlighted the following recommendations for the Ministry of Petroleum and Natural Gas:

- “Achieve wider kerosene and LPG access through financial assistance schemes and efficient subsidy programmes using Debit Cards and Smart Cards. This could be tried out on an experimental basis in a few districts to ensure that the kerosene and LPG reach the households and not used to adulterate fuel for transport.
- Women should be enabled to run Public Distribution shops and kerosene distribution shops.
- LPG community kitchens as run by some private sector organisations . . . could be encouraged.”

*(ENERGIA & IRADe, 2009, p. 52).*

The report also undertook gender analysis of The Integrated Energy Policy (Government of India, 2006) and the Report of the Expert Committee, of the Planning Commission which oversees India’s five-year plans that include energy, and the various Ministries. This report explicitly acknowledged a gender approach and was recognized as “the first of its kind in the energy sector in India” (Parikh & Sangeeta, 2008, p. 19). A subsequent meeting (on April 7, 2008) discussing gender and the IEP made the following observations around gender and subsidies: the subsidy program is poorly targeted and does not reach the intended beneficiaries. LPG and kerosene are considered cleaner and convenient cooking fuels and regarded as gender-friendly to some extent. Government provides a huge subsidy to these fuels, but 35-40 per cent of kerosene in rural areas goes for adulteration of diesel. Addressing gender is a matter of targeting large numbers of Below Poverty Line (BPL) people, especially women, do not really benefit from subsidies. Those who depend on firewood should be provided with kerosene or LPG, whereas those already using kerosene should be moved to the next level (i.e., LPG). The Ministry of Petroleum and Natural Gas does not have targets to reach certain number of households every year. Smart cards, LPG stoves, subsidies were all discussed in the context of gender. A summary of the recommendations from the IRADe and ENERGIA 2009 report are included in the Appendix, and although the report focused primarily on the Ministry of New and Renewable Energy (MNRE), many of the findings are pertinent for wider energy policy issues such as the impact of fossil-fuel subsidy reform on women.



#### **BOX 11. GENDER BUDGETING AND ANALYSIS**

- There have been major efforts in the past to undertake gender analysis for the energy sector and government planning as a whole (such as a 2008 gender audit of national energy policies). The focus has been linked to biomass (e.g., on the MNRE or firewood and dung cake) and little around the impacts of fossil-fuel subsidy policies on gender equality. There has been no recent gender budget statement as such, for example none linked to the Twelfth Five-year plan.
- Broad recommendations and insights from past analyses include: coordination of gender issues across ministries managing energy policy; omission of planning around firewood and dung and the importance of women within national energy strategy; a need to include gender within monitoring of government programmes.
- Such analysis has underscored the potential for energy to be empowering for women: through improving health outcomes, better economic outcomes and business opportunities, reduced time spent and lower risk from searching for fuel, access to modern fuels etc., but the lack of movement towards such outcomes has been raised consistently.
- Indian energy policy has not focused on gender issues, nor on biomass energy needs and yet two thirds of India's population (roughly 818 million people) live without access to clean cooking facilities and rely on biomass (IEA, 2013).





## 4.0 Opportunities From Subsidy Reform for Women

Other countries that have undergone fuel subsidy reform have greater fiscal resources to invest in national safety net schemes, health, education and renewable energy (e.g. the Philippines). In the long term, reform of Indian fossil-fuel subsidies could enable government to increase investment in other areas of Indian society. Currently, spending on fossil-fuel subsidies in India represents 2.3 per cent of GDP (IEA 2012), almost double that of public expenditure on health (1.3 per cent) (World Bank, 2012b) and approaching that of government spending on education (3.2 per cent) (World Bank, 2011). Fossil-fuel subsidies have been shown to be an extremely inefficient and regressive way of transferring benefits to the poor—many Indian women do not benefit from subsidies although they might if subsidies were redirected into other areas of society or directly into targeted cash transfers.

GSI has undertaken extensive research on cash transfers in Asia and particularly around fossil-fuel subsidy reform in kerosene and LPG. The impacts of these schemes on women have been described in Section 3. This report is not designed to look in detail at cash transfers: it is sufficient to observe that cash transfers linked to subsidy reform need to be directed to women, and therefore access to bank accounts and banking services for women is crucial. This is not currently the case, and women are thus at a severe disadvantage compared to men with regard to accessing direct benefit transfers, stemming from kerosene and LPG reform, when deposited into a bank account.

Importantly, discrimination against women within India households is also identified as one of the reasons why the transition to cleaner cooking fuels has been so slow within India. There are many other factors at play (possibly over and above subsidies and the price of fuels) that will determine if households switch to cleaner fuels. National surveys in India (such as the National Family Health Survey and district level health surveys) have found that households in which women have or share final say over more decisions are more likely to use clean cooking fuel (Kishore, 2013). Duflo et al. (2008b) found that in Orissa “households in which women may be more empowered—by virtue of being members of a savings group—are 2 to 3 per cent more likely to use a clean stove” although this could be as a result of other factors such as wealth or income. It has also been suggested that “if women’s status is indeed part of the explanation regarding the slow adoption of cleaner fuels ... the subsidies may be more effective in encouraging the transition away from biomass fuels if the money goes into the hands of women of the households ... policy makers should keep this in mind when shifting to the proposed direct benefit transfer (DBT) system for cooking fuels and other welfare systems” (Kishore, 2013).

Savings and resources from subsidy reform could be better targeted towards energy for all and for women in particular in the following ways:

- Rural household electrification either through grid extension, mini grids or solar panels.
- Targeted cash transfers aimed at poor rural and urban women accessible by women via bank accounts or other banking models, all in women’s names.
- A push for modern cooking fuels in rural areas through a mixture of biogas and/or LPG through one-off subsidies towards connection and setup costs.
- Investment and management in biomass resources and making biomass cleaner and easier to access through cleaner cook stoves, managed wood-lots, biogas etc.
- Working through and with women’s groups to bring about both modern energy facilities and the empowerment of women.



## 5.0 Conclusions

This paper has examined fossil-fuel subsidies and reform in India from a gender perspective and found that women do not currently benefit from LPG subsidies, as they tend to use biomass and spend much of their time gathering fuel and cooking. Research suggests that the direct price impact of LPG subsidy reform on poor rural women would be small, but reform would have a direct impact in urban areas and on wealthier women. Working to prevent women slipping back down the energy ladder from LPG to using other dirtier fuels is critical. The discussion supports the contention that kerosene subsidies are a very inefficient way of redistributing income especially to poor women. Indeed, removal of kerosene subsidies would have a small impact on rural women who use kerosene as a lighting fuel. Kerosene subsidy reform would have a noticeable impact on urban women using it as a cooking fuel, especially for those without access to LPG or biomass. In addition, it is critical to understand and manage the indirect impacts of kerosene subsidy reform on women over men, such as restricted access to other foodstuffs from PDS dealers.

In those situations where Direct Benefit Transfers (DBTs) to replace either kerosene or LPG fuel subsidies have been piloted it is clear that women are at a disadvantage and have been unable to access subsidies. Financial inclusion and access to bank accounts and LPG connections in women's names and for women will be key if such schemes aim to compensate and empower the users of kerosene and LPG cooking fuels—that is, women.

There could be potential indirect impacts on food prices for poor rural women from increasing the price of diesel (and therefore also food transportation costs), yet changes in public transport prices are more likely to affect men than women. State-level reforms of electricity subsidies have led to increased water prices and reduced access to water for the poor. More women than men are agricultural labourers, and an increase in water costs could affect them more heavily.

Better understanding of the impacts of the reform on women will come with access to better household energy survey data broken down by gender. National time-use surveys linked to gender and energy could hold insights, although there has been only one, and it was conducted in 2000. Yet there have been major efforts within India to undertake gender analysis for the energy sector and government planning as a whole (e.g., a 2008 gender audit of national energy policies). However, the focus has been linked to biomass, and there has been little analysis around the impacts of fossil-fuel subsidy policies on gender equality. Recommendations from gender analysis of energy policy include better coordination of gender issues across those ministries that manage energy policy, the need for inclusion of planning around firewood and dung and the importance of women within any national energy strategy, and a need to include gender within monitoring of government programs. It is clear that energy policy has the potential to be empowering for women: through improving health outcomes, better economic outcomes and business opportunities, reduced time spent and lower risk from searching for fuel, access to modern fuels etc., but the lack of movement towards such outcomes has been consistently raised.

In general, policy-makers must recognize the vulnerability of women within this water-food-energy-poverty nexus, and subsidy reform of cooking fuels without wider governmental support or programs (e.g. cash transfers, improved energy infrastructure etc.) will not help the situation for women. Fossil-fuel subsidy reform ought to take place alongside broader infrastructure and practice changes: e.g., changes in agricultural techniques and water systems, introduction of solar pumps, rural electrification, LPG for kerosene programs, and upfront subsidies for LPG connections, biogas or solar. Furthermore, in general women should manage and be protected from indirect impacts, such as increases in food or water prices, through functioning cash transfers and social safety programs targeted at poor women.



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## 6.0 Appendices

### APPENDIX A: RESULTS FROM KEROSENE SUBSIDY PERFORMANCE IN MAHARASHTRA, INDIA, (2004–2005 DATA)

<b>Materiality</b>	Among those spending less than US\$2/day in rural and urban areas, the average income relief from the kerosene subsidy amounts to 0.3 per cent and 0.5 per cent of household expenditure respectively. Benefits vary widely across income centiles, from 0-1.3 per cent of household expenditure. 24 per cent of rural and 47 per cent of urban kerosene-using population receive benefits that exceed 1 per cent of total expenditure.
<b>Progressivity</b>	Rural area subsidy benefits are regressive (income relief is 0.37 per cent under \$1/day and 0.41 per cent for those earning below \$2 a day), yet in urban areas the subsidy is progressive (income relief is 0.58 per cent for lower and 0.53 per cent for middle income groups).
<b>Policy efficacy</b>	For every 100 rupees of subsidy, only IDR26.5 of income relief is delivered to households directly. It is even lower for the poor—for every rupee of income transferred to the poor, 6 rupees has to be spent by the government. The low efficacy rate reflects the fact that only 31.3 per cent of the kerosene picked up by wholesalers was delivered to households through the PDS in 2004–2005, based on NSSO0405. Households pay prices that include actual transport costs and rents in addition to the wholesale subsidy price.

Source: Rao, 2012.

### APPENDIX B: FINDINGS AND RECOMMENDATIONS FROM THE 2008 GENDER AUDIT OF INDIAN NATIONAL ENERGY POLICY

FINDINGS AND IDENTIFIED GAPS	RECOMMENDATIONS
<b>Reorienting monitoring and evaluation to reflect gender in energy programs</b>	
<ul style="list-style-type: none"> <li>Reliance on tradition biomass is huge and likely to continue. The level of national investment in the management and conversion technology of traditional biomass is limited, and no industry has the mandate to ensure sustainable supply.</li> <li>Barriers to women’s participation in renewable energy include lack of access to financial resources, lack of land ownership, lack of technical education and training and unequal power relations in the household.</li> <li>None of the existing programs collect gender-disaggregated data, and so it is difficult to assess impacts of policies and schemes on women’s well-being.</li> </ul>	<ul style="list-style-type: none"> <li>In terms of improving performance on gender and energy the use of gender indicators within monitoring and evaluation of programs should be used across various ministers. The use of gender disaggregated data in monitoring and evaluation would highlight benefits and inequalities.</li> <li>Gender goals should be articulated in preparation of energy programs using explicit and measurable indicators.</li> <li>Gender budgeting should be used by Ministries to assess how each ministry uses resources to address women’s practical and strategic energy needs, including ownership of energy infrastructure and participation in management.</li> </ul>
<b>Linking women’s empowerment with energy development</b>	
FINDINGS AND IDENTIFIED GAPS	RECOMMENDATIONS
<ul style="list-style-type: none"> <li>12.67 per cent of the MNRE 10th 5-year plan addresses women’s specific energy needs.</li> </ul>	<ul style="list-style-type: none"> <li>Set up a mechanism within MNRE to ensure that the budget to address women’s needs is used while instituting more programs to include gender responsive goals and activities.</li> </ul>
<ul style="list-style-type: none"> <li>Energy programs for women have failed to recognize the potential contribution that energy services could make to women’s empowerment within a socioeconomic context, and have been limited to needs of cooking and lighting.</li> </ul>	<ul style="list-style-type: none"> <li>Incorporate NGO and private sector organizations in MNRE programs and increase the number of women as energy officers and gender imbalance in staffing. Produce an annual report on energy systems and women’s social status, increasing employment and decision making within communities and households and the percentage of energy assets managed by women.</li> </ul>



<i>Inter-ministerial coordination</i>	
<b>FINDINGS AND IDENTIFIED GAPS</b>	<b>RECOMMENDATIONS</b>
<ul style="list-style-type: none"> <li>Non-commercial energy is not only the responsibility of the MNRE but spread across many other ministries (Ministry of Environment and Forests, the Ministry of Rural Development and the Ministry of Agriculture). Similarly, electricity, kerosene and LPG also contribute to household energy and are spread across various ministries i.e. Ministry of Power and Ministry of Petroleum and Natural gas. Lack of coordination has led to poor supply networks and inefficient delivery mechanism with disproportionate impacts on women's wellbeing and economic development.</li> </ul>	<ul style="list-style-type: none"> <li>Develop working relationship between ministries to develop gender responsive budgeting.</li> <li>Give a mandate to the MNRE gender budgeting cell to collaborate and advise GBCs.</li> <li>Develop training capacity programs within other Ministries to use gender budgets.</li> </ul>
<i>Making cooking fuel available within one kilometer of rural habitations</i>	
<ul style="list-style-type: none"> <li>Biomass fuels are likely to remain primary fuels for process heat and cooking for years to come as commercial energy options are, even with subsidies, still expensive and inaccessible for India's rural poor. Therefore the importance of this target included in the 11th Five year plan. Such a target is equally important for other clean affordable forms of cooking energy in order to reduce women's drudgery, the time they lose gathering fuel and the health impacts of indoor air pollution.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen the goal for establishing fuel wood plantation within one kilometer of all habitation and include access to other fuels such as LPG, kerosene and biogas.</li> <li>Establish cross Ministry cooperation at different levels: state, district, ecosystem and economic status to work through this goal.</li> <li>Provide finance and capacity building support to organize fuel wood plantations and projects at the village level. Utilise self-help groups at the local level enabling participation in energy management and village decision making processes. Therefore also reducing transaction costs for other energy enterprises (wood lots, biogas, solar energy, LPG) etc. and gaps between policy commitments and implementation.</li> </ul>

Source: Based on Parikh and Sangeeta (2008) & IRADe and ENERGIA (2009).

### APPENDIX C: SELECTED FINANCIAL INCLUSION DATA FOR INDIA, 2011

	<b>2011</b>
Account at a formal financial institution, female (% age 15+)	26.5
Account at a formal financial institution, male (% age 15+)	43.7
Account at a formal financial institution, rural (% age 15+)	33.1
Account at a formal financial institution, urban (% age 15+)	41.0
Account used to receive government payments (% age 15+)	4.0
Account used to receive government payments, female (% age 15+)	3.5
Account used to receive government payments, income, bottom 40% (% age 15+)	3.1
Account used to receive government payments, income, top 60% (% age 15+)	4.9
Account used to receive government payments, male (% age 15+)	4.4
Account used to receive government payments, rural (% age 15+)	4.0
Account used to receive government payments, urban (% age 15+)	4.0





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