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Fried bean cake seller (*Baiana do acaraje*) in Salvador, Brazil, uses LP gas for her enterprise  
(Photo: André Oliver, Winrock Brazil)

## Gender, Energy and Urban Poverty

Adriana Alvarez, Joy Clancy, Feri Lumampao and Joanna Olu Maduka

While much has been researched and written about the effects of energy on the rural poor, very few studies have documented how energy is related to the livelihoods of the urban poor. There is even less known about how gender issues crosscut urban poor livelihoods. That the urban poor have better access than the rural poor to the benefits of cleaner forms of energy remains no more than an assumption and is a serious concern in studies about urban poverty<sup>1</sup>.

This issue of ENERGIA News focuses on the gender-energy-poverty nexus and tries to throw some light on to this little researched area. Two studies funded by the UK's Department for International Development's Knowledge and Research

Programme are featured: *Enabling urban poor policy making: understanding the role of energy services in Brazil, Nigeria and the Philippines* (three articles by the country team leaders) and *The Impact of energy on poor urban livelihoods in Arusha, Tanzania*. A fifth article focuses on a study into gender and prepayment electricity in Merlo, Argentina. This editorial discusses the general results and conclusions from the first study while making linkages with the two other studies.

It should be emphasised here that the three-country study was not comparative in nature and did not collect the same data in all three countries. In order to contribute towards an understanding of the factors that play a role in moving people out of poverty, it was decided to focus on the enterprises of the urban poor in the study. What role does energy play in such enterprises and

what can be done to enhance that role? The enterprise sectors covered were: fish processing, cassava processing, akara (bean pastry) frying and pottery (Nigeria); street vendors, bakeries/small markets (Brazil); food processing and preparation (in households) and shoe making (the Philippines). There was a good gender balance in the ownership of the enterprises selected. In Nigeria, data were collected using questionnaires from four poor urban communities in Lagos and Abuja (two in each city). A total of 598 households and 147 enterprises were interviewed. In Brazil, data were collected in two poor communities in Salvador, North East Brazil. Two hundred and fifty-nine households were surveyed in Plataforma and 255 in Canabrava. Case studies involving 25 small enterprises in each community were completed, and two focus group discussions, one in each community, were held. In the Philippines, 600 respondents from six districts in Manila and 400 from Marinka were interviewed in general household surveys. Sixty respondents from Manila and 40 from Marinka were selected for focus group discussions. Both quantitative and qualitative data were collected. The study did not specifically focus on gender but gender analysis was integrated into the methodology.

The following hypotheses were used to provide a framework for data collection and analysis:

- Clean and affordable energy services are key factors in creating good physical wellbeing and acceptable productivity in urban households and enterprises;
- Social networks and relationships facilitate access to urban energy services;
- Energy services are key factors in sustainable energy livelihoods by increasing the viability of existing enterprises and enabling the establishment of new ones; and
- Energy sector reforms lead to improved access to energy services by urban enterprises.

Here we will focus on the results related to the first hypothesis, with particular attention given to the gender aspects. The indicators used to test the first hypothesis included health, water purity and sanitation, meals and the perception of wellbeing. Naila Kabeer, well-known gender specialist, has noted that “health is the key to productivity among the poor” since they depend on their own energy for making a living. First, we will give some general background on energy and urban poor enterprises in the three countries and then report on findings related to the indicators.



Members of the research team presenting their findings at the international workshop hosted by DFID in London. More information on page 8. (Photo: Joy Clancy)

## Household Energy and Enterprises

What emerged from the surveys is the strong linkage between household access to energy and enterprises. Many of the enterprises in the study are located, at least for part of the process, within

the household. This makes it difficult to disaggregate energy and equipment use between productive and reproductive activities. Many enterprises use standard household equipment for operating their businesses, and these are frequently located within the household itself. For example, food-processing enterprises use blenders, refrigerators, freezers and stoves, while hair salons use hairdryers, curling tongs and electric razors. In Brazil, this has meant that enterprises have been able to benefit from packages designed to benefit the family, such as the LPG voucher scheme which entitles a family to a small free cylinder of LPG. Similarly, electricity in the household is also used for enterprise activities at a lower tariff than applicable for commercial premises.

LPG and electricity were the main sources of energy used in the enterprises surveyed in this study in Brazil and the Philippines (48% use LPG and 16.5% electricity in the latter). Kerosene is also significant in the Philippines (22.5%). In Nigeria, since process heat is necessary for the enterprises surveyed, 40% of the enterprises use fuelwood, followed by kerosene (26%) and charcoal (21%). Despite Nigeria being a major oil producer, the use of LPG is severely restricted with only five enterprises reported using LPG.

Electricity is used for lighting and other enterprise activities. Women seem to benefit by increasing the range of services they can offer with access to equipment running on electricity (or at least continue to offer a service that becomes cleaner and involves less drudgery, such as ironing). In the Philippines, many enterprises are providing services such as washing and ironing clothes involving the use of electrical appliances and, in Brazil, hairdressing and clothes making also benefit. Electrical appliances reduce drudgery, a benefit which appears not to have yet reached women in Nigeria who continue to make major inputs of metabolic energy in the preparation of their products. The Nigerian study revealed that electricity is the most commonly used energy form by the poor for lighting, both in the old and the newer urban areas. However, because of the irregular supply, residents have been switching back to using kerosene which is a more reliable source. Kerosene use, however, creates soot and black smoke with the attendant pollution and health problems.

Access to electricity by the urban poor is often complex and not always cheap or legal. Bureaucratic barriers (such as the need for a registered address) can be circumnavigated by the use of informal services which can also be cheaper than the official providers. However, these services can be dangerous (often involving electric wiring installed by untrained people). In their article in this issue, Wendy Anneke and Marialba Endelli report that, even for those with a legal connection, electricity can be expensive if the connection is owned by a ‘slum lord’ (or lady) who charges all those who lead off it exorbitant rates, making a tidy profit in the process. In our survey, it was apparent that the utilities were not making efforts to legalise the “illegal” connections (and many owners indicated that they would prefer a legal connection if the barriers could be removed). Wendy and Marialba report on a scheme in Argentina that is trying to do this in which prepayment meters are installed in exchange for debt cancellation. The consumers then have to buy prepayment vouchers from machines similar to automatic teller machines (ATMs) installed in convenience shops. It is interesting to note that it is mainly men who go to buy the vouchers, although the authors could not find an explanation for this phenomenon. In Nigeria, the utility company has also introduced prepaid coin-operated meters in some areas due to significant non-payment of bills. To its credit, the utility is not charging a higher tariff for slot meters, as is commonly the case elsewhere including in Europe.

## Health

Even when sick, entrepreneurs and their families continue to

work and manage home-based family businesses. This is especially common in the informal sector where people do not have the luxuries of a formal-sector employee of sick leave from work or the possibility of consulting a doctor paid for by a company policy. It is of particular concern that many food vendors continue to work when they are ill since this has implications for the transmission of diseases. However, it is not only energy which can play a role in reducing waterborne illnesses but other simple hygiene practices such as the washing of hands. In one of the six study districts in Manila, Approtech Asia facilitated the implementation of a Water, Sanitation and Hygiene (WASH) campaign with the Water Supply and Sanitation Collaborative Council (WSSCC) in 2002. The community leaders, mostly women, make soap and hand cleanser. A ferrocement rainwater tank was constructed by men. Daycare Centres teach the importance of hand washing in maintaining good health.

Interestingly, in Brazil, where households and enterprises were generally using clean fuels, it emerged that, at least in the households sampled, respondents reported ailments which are usually more associated with “non-clean” energy sources – eye irritations, coughs, sinus problems and shortness of breath – among the leading health complaints. Since the research is not an epidemiological study, it is not possible to give an explanation for these health problems.

The enterprises in Nigeria were using fuelwood and producing a lot of smoke. Questions need to be asked about the levels of exposure to wood smoke these women experience. The health impacts of outdoor use of woodstoves for household cooking have been studied to a limited extent. The very incomplete evidence indicates that, at least for the cook, there is no significant difference between indoor and outdoor cooking<sup>2</sup>. If this is really the case, given that the entrepreneurial women in Nigeria are being exposed to wood smoke for considerably longer periods than if they were just cooking the family meal, and since time exposure is known to be a significant factor in terms of health impacts, this is a real cause for concern. It is an area where epidemiological studies are urgently needed.

## Water Purity and Sanitation

Water purity and sanitation are linked to energy in the sense that people sometimes need to boil water to ensure that it is potable. In Nigeria and the Philippines, water quality was found to be a major concern. In Nigeria, the residents of the communities surveyed obtained their water from a variety of sources, with less than one-fifth of households having a tap within their own house or compound. Despite this, diarrhoea is not reported as a major health concern, since people are able to treat the illness through easy access to appropriate medication. Water quality was clearly considered to be a more important issue than continuity of supply (46.8% of respondents compared to 24.4%) and kerosene was used to boil drinking water as a preventative measure. In the Philippines, although the supply is piped, the utility is not always able to provide a continuous supply. When there are supply problems, there tend to be related quality problems. During these periods, the few who can afford it buy bottled water (only two participants in the focus groups reported doing so). Others will boil water, although this is expensive in terms of energy as well as being time consuming. During focus group discussions, women reported spending considerable amounts of time waiting for the household's daily water requirement to trickle from taps.

In Brazil, waterborne illnesses were generally considered to be linked to human waste disposal rather than poor quality of the supply. A sizeable percentage of the surveyed population report suffering from parasitic worms (13.9% in Plataforma and 17.3% in Canabrava). These percentages show a reasonable match with those drinking untreated tap water – 12.8% in Plataforma and 25.9% in Canabrava). This suggests that there may be a link between drinking untreated tap

water and suffering from worms<sup>3</sup>. Boiling the tap water is likely to reduce infections generally.

## Meals

The increased energy costs experienced, due to the increase in world oil prices and the privatisation of energy utilities, has induced behavioural changes in respondents with regard to food preparation. In Brazil, energy management strategies such as pre-soaking beans (to reduce cooking time) and/or using pressure cookers were reported during focus group discussions. In the Philippines, approximately one-quarter of the households sampled reported changing their food preparation techniques due to increases in energy costs, in some cases this can be as extreme as skipping breakfast (1%) and buying cooked foods (3.7%). In Nigeria, most of the households surveyed have reduced the number of times they cook to only once or twice daily. Households appear to be increasing their purchasing of pre-cooked food - in part due to high energy costs (particularly in the Philippines), and partly because women increasingly work long hours outside of the household (potters, fish smokers and cassava processors, during focus group interviews, were reporting working days of 12 to 14 hours, three days a week).

## Wellbeing

Good health was identified as a key aspect of wellbeing and linked to the ability to work by more than half of the respondents in the Brazil survey. Interestingly, money was not the highest priority for the respondents – only around a quarter cited this as a factor in wellbeing despite nearly half reporting a lack or shortage of money as a current household problem. In the Philippines, people in the focus group discussions reported changing jobs for health reasons.

An interesting perception of wellbeing comes from Kwali in Abuja, Nigeria. Wood ownership is linked to wealth status: the larger your woodpile the wealthier you are. It was found that women generally accumulate firewood for their daughters to inherit by reserving some each time they cook. The daughters inherit the accumulated firewood on the death of their mother. The greater the quantity of firewood inherited, the higher the status accorded the daughter in the community. Therefore, the larger her pile, the greater the psychological wellbeing of a mother; secure in the knowledge that she is providing for her daughter. This will make it difficult to persuade this community to switch to another fuel.

## Improving Access to Modern Energy in Poor Urban Households

Careful energy management is particularly important for poor households who are currently spending up to one-third of their limited incomes on energy. A pertinent question is thus how to reduce these costs. Sheilah Miekle gives some insights into possible answers to this question. In her study, *The impact of energy on poor urban livelihoods in Arusha, Tanzania*, switching to modern energy sources could lead to time-saving and the more efficient use of energy (and hence potential cost-savings), not only by women but also by men and others in the home. In order to do this, our knowledge and understanding of the performance of various fuels and how best to use them has to be improved. Such information is needed in order to be able to advise households on how best to manage their household energy budget. Sheilah found that if women's and girls' access to modern energy was improved they would be willing to use it and would also save time. However, to achieve effective and sustainable changes in the household energy process, it will be necessary to work with both women and men.

This is certainly in line with our findings linked to decision-making

within households. In the two higher-income countries, there appears to be a more gender-equitable decision-making process in households about gender and energy issues. However, in Nigeria, it is still men who predominantly make the decisions about energy forms and gadgets used in the household. Of the households surveyed<sup>4</sup>, 226 reported the man made the decisions about fuel, 63 the woman and in only 22 was it a joint decision. A similar pattern was

found in decision-making on the purchase of electrical appliances. Given the close relationship between household energy and urban informal-sector enterprises, the decisions made largely by men about household energy impact on women's enterprises. If women are to have access to modern energy services, decision-makers should bear in mind that as well as developing mechanisms to assist women, men also need to be convinced of the benefits. ■

<sup>1</sup> J S Clancy (2006), *Urban poor livelihoods: Understanding the role of energy services*. Best Practices paper prepared for DFID KaR R8348. March.

<sup>2</sup> Professor Kirk Smith, University of California, Berkeley: <http://ehs.sph.Berkeley.edu>

<sup>3</sup> Causality is not proposed here but rather an indicative correlation that needs further epidemiological investigation.

<sup>4</sup> The totals cover all households (married/unmarried male/female heads).

The authors of this editorial conducted the DFID-KaR funded research study on **Enabling urban poor policy making: understanding the role of energy services in Brazil, Nigeria and the Philippines**. Joy Clancy was principal investigator of the study with Adriana Alvarez, Feri Lumampao and Joanna Olu Maduka as team leaders of the country programmes in Brazil, the Philippines and Nigeria respectively.



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