

GENDER AND ENERGY: SOUTH-NORTH PERSPECTIVES

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I would like to start by thanking some people for their contribution to making this forum possible: the first time that ISES has had a special session devoted to gender and sustainable energy, and ENERGIA is proud to be involved in its organisation. First, thanks are due to Monica Oliphant, the Congress Chair, without whose personal commitment to the issues of gender and energy, we would not have today's session. Secondly, I would like to thank Judy Johnson, an ENERGIA Consultative Group member from Australia, who started the planning for the Forum and who unfortunately cannot be here today. It is also a pity that Jane Lynch from the Centre for Appropriate Technology in Cairns, who has been so enthusiastic about starting an ENERGIA network in Australia, cannot also be with us. Last but not least, I would like to thank Donella Bryce, also a member of the ENERGIA Consultative Group, for all the hard work she has put into finalising the programme. No mean feat in these times of uncertainty with who is and who is not travelling. That is partly why I am giving this speech. Originally, Dr Maki Mandela was to have given this keynote speech but unfortunately had to withdraw too close to the Congress for us to find a keynote speaker. ENERGIA really prefers women from the South to speak on their own behalf.

In this presentation, I would like to explore some of the current thinking on development, what the implications are for the energy sector, and then to examine the gender implications of the energy-poverty nexus. Following on from this, I would like to look at the role Renewable Energy Technologies (RETs) have to play in this arena. I also intend to make a few remarks on gender and energy issues in the North, before concluding with suggestions on how to move forward.

DEVELOPMENT AGENDAS FOR THE SOUTH

Development policy, as outlined by donors and international development agencies, is currently about addressing poverty. Poverty is conceived as inadequate levels of food, water, clothing shelter, sanitation, and basic health and education services. People who live in poverty do not have adequate financial resources to pay for these goods and services. This is a rather materialistic conception of poverty, and a more holistic view of poverty might consider a person's sense of wellbeing. "Wellbeing" is conceptually more difficult to define in quantifiable terms and indeed may contain subjective elements. However, people who have a sense of wellbeing, may consider that they have an element of control over decisions affecting their lives and that the society in which they live treats them with respect and dignity.

They have a personal sense of worth. Unfortunately, such feelings are not ones that poor people often experience. It is estimated that in 1993 around 13 billion people were living in poverty (defined as consuming less than US\$ 1/day worth of goods and services, UNDP 2000). Current development thinking aims to move these people out of poverty.

People working in the energy sector recognise the essential role energy services play in delivering the goods and services people require in meeting their daily needs. However, it is interesting to note that, in the list mentioned above, energy is not included. Those who set the development agenda do not consider energy as a basic need. This means that energy practitioners are required to make a strong case to development practitioners about the need to change that approach.

ENERGY AND POVERTY

What do we know about the energy use of people living in poverty? We can state with confidence that biomass is the fuel of poverty. There are an estimated two billion people using biomass as their primary energy carrier (UNDP, 2000). Current conversion technologies result in low quality useful energy, high in smoke and particulates that are recognised as having negative effects on health. In the majority of rural areas, all households will use biomass, and low-income households will spend more time searching for biomass than higher income households. In urban areas, households have to purchase fuel, and low-income households spend a higher proportion of their income on fuels than high-income households. In rural areas, poor households will generally only purchase fuel to provide lighting (candles and kerosene) although there are signs that in certain areas (e.g. Sundabans region of West Bengal in India (Sinha, Personal Communication) they are purchasing biomass fuels.

Poor households use less energy per household than wealthier ones. Less water is boiled for drinking and hygiene purposes and this increases the likelihood of water borne diseases, which in turn reduce the capabilities of poor people to improve their livelihoods by, not only preventing adults from working effectively, but also negatively affecting children's learning. Wealthy households are able to exercise some choice in their energy carriers and many opt for the cleaner and more efficient "modern" energy forms of electricity or gas (LPG or biogas). People see the practical benefits of these modern energy forms: they are cleaner (positive health impacts) and quicker (time saving) in use than traditional forms. The use of these forms of energy also creates a feeling in the user of moving towards being part of a more modern society. Wealthier households also use biomass for certain household tasks but, since they are able to afford a more efficient stove with lower fuel consumption and lower levels of pollution, the use of biomass is not as problematic as it is for poorer households.

These brief insights into the energy dimension of poverty, leads us to the concept of energy poverty: the absence of choice in access to adequate, affordable, reliable, high quality and environmentally-benign energy services (UNDP, 2000). We have only limited knowledge about the energy-poverty nexus and there is a need to provide more case studies of the dynamics in poor communities (rural and urban) to ensure sustainable interventions.

GENDER, POVERTY AND ENERGY

A social analysis of poverty soon reveals that there are distinct gender aspects to poverty: the socially determined roles that men and women play in society (that is their gender roles) mean that they encounter poverty in different ways, they experience it differently, and their strategies and opportunities for escape are also different. By extension, the role energy plays in the gender dimension of poverty will also be different for men and women. Understanding what gender analysis is about is important for everyone in the energy sector to help overcome resistance to reaching more sustainable solutions. Understanding the gender dimensions of poverty influences policy making, the solutions that are implemented, and the manner in which the implementation takes place. Get the analysis wrong, for example by ignoring gender differences, and you will only treat part of the problem and the solution will be unsustainable.

Using gender as a factor of analysis in a particular context is not about looking at women alone, nor is it about complaining that women suffer more than men, but rather gender is

about reaching a better understanding of how communities work from the perspective of relationships between men and women. The outcomes of gender analysis can then be used for developing solutions with communities themselves, and by taking gender into account achieving more sustainable solutions.

Of the 1.3 billion people who live in poverty, 70% are women. Approximately one-third of the households in rural areas have female heads. Within this context, women are usually responsible for energy provision within the household and for tasks that ensure the survival of the family. Women carry a physical and metaphorical burden in energy provision. In rural areas, it can mean spending several hours a day collecting fuelwood loads of 20 kgs or more. In urban areas, it can mean juggling with tight household incomes to buy charcoal or kerosene. Many of these tasks are demanding of both human energy and time, and they affect disproportionately women's health compared to men's. For example, the higher levels of lung and eye diseases suffered by women as compared to men are attributed to the longer hours of exposure to smoke in kitchens (Smith, 1999). Fuel collection also reduces the time women have available for contributing to other aspects of livelihood strategies. In some scenarios, up to six hours a day are spent on fuel collection.

Women are also responsible for a number of other survival tasks needed to sustain the household, such as water collection and food processing. Again many of these tasks are demanding of both human energy and time. Energy interventions are available that would do much to reduce the drudgery involved in these daily household activities. For example, the preparation of many staple root crops takes an hour of vigorous pounding, which can be simply substituted by milling.

The whole issue of women's time and effort saving (that is, the reduction of drudgery) seems not to receive the attention it deserves. This could be attributed to the fact that decision makers and planners are not fully aware of the demands placed on women's physical labour. Women's survival tasks, in terms of their own metabolic energy inputs, are invisible in energy statistics (Cecelski, 1998). As a consequence, the development of labour saving devices is not high on the agenda. A useful quotation from the Gender Advisory Board of UNESCO reminds us that in order to make improvements in women's lives, the inclusion of their energy contribution into national energy statistics is needed (Huyer and Gestholm, 2001):

“No data, no visibility; no visibility, no interest”.

There are a number of methodological challenges involved in providing appropriate data, and objections have been raised along the lines that this might not be possible due to the complexity of measurement. However, this should not be seen as a reason for not attempting the exercise, after all such reservations have been made in the past about including biomass energy in national energy statistics and the development of environmental indicators. Science would never have moved forward if theories had not been tested because they were too difficult.

Figure 1 shows the linkages between women's current energy situation as it is embedded in poverty. Energy can be an enabler for moving people out of poverty by increasing disposable income by improving energy efficiency of micro-enterprises or opening up new entrepreneurial opportunities. In other words, sustainable energy is at the heart of the transition out of poverty. In addition, access to modern forms of energy, in part enabled by

increased income generating opportunities, contributes to women's sense of wellbeing, a primary objective of development.

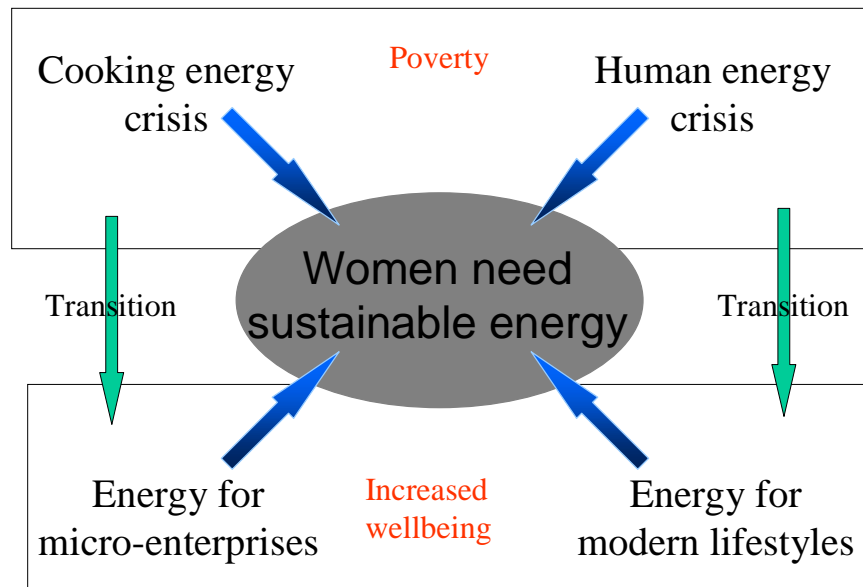


Figure 1: The role of sustainable energy in helping women move out of poverty (adapted from Cecelski, 1998)

ENERGY SERVICES ENABLING TRANSITION OUT OF POVERTY

Addressing the cooking and human energy crises

As we have seen above, women need sustainable energy services that address two crises in their lives: cooking and drudgery. There are a number of choices of modern energy carriers for cooking, each with advantages and disadvantages.

- *Electricity*
Much of the focus in the energy sector is currently on electricity, in part linked to the liberalisation of energy markets and the promotion of solar home systems. Unfortunately, electricity is not the cheapest option for cooking many basic foods, although cooks do appreciate the cleanliness of the energy form. Solar home systems cannot be used for cooking since their output is too low.
- *Solar cookers*
There are many enthusiastic promoters and users of this technology. However, there are still a number of challenges to overcome with this technology including variations in sizing to accommodate the cooking needs of different household sizes. One person's advantage (portability for moving around the household) soon becomes another's disadvantage: easy to steal! The technology requires changes in cooking practices and these can be difficult to achieve and sustain. A major drawback of this technology is that it has often been taken up by enthusiastic well-meaning amateurs, and cookers with poor

aesthetic design are produced. While this might work in emergency situations, e.g. refugee camps, when people are asked to part with hard earned cash they do not want to buy something which looks second rate.

- *Biogas*
Cooks who use biogas respond enthusiastically to its controllability and cleanliness. However, the cost of a digester and the number of animals required to produce sufficient gas for the household's daily cooking needs is usually beyond low-income households. The collection of the water needed as an input adds considerably to women's burden (in other words the savings of metabolic energy/time spent on fuel collection is switched to water collection).
- *Kerosene/LPG*
Poor urban households have greater access to these more modern fuels than rural ones. Although these fuels are not sustainable, they do represent a short to medium term option, and they should not be neglected in any strategy. Cooks like the controllability and cleanliness aspects. There is a need to examine how the stability of kerosene stoves can be improved, while keeping costs down, to reduce accidents from stoves being knocked over while supporting large cooking pots.
- *Improved biomass stoves*
Biomass will remain the fuel option for many households. Therefore, there is a need to produce wood and charcoal stoves that are more efficient and pay attention to safety issues (smoke with wood, and carbon monoxide with charcoal).

Each energy carrier has its enthusiastic supporters and detractors. However, it should not an argument about which technology, but about enabling women to choose which option meets their needs and fits their circumstances.

Although electricity might be too expensive for many low-income households, women can nevertheless benefit from public services provided by electricity (Cecelski, 2000). For example:

- Labour and time saving through services such as:
 - Pumped water
 - Food processing
- Street lighting giving improved security, enabling women to go out after dark to participate in community activities.

Energy for micro-enterprises

Access to income is a keystone in strategies to move people out of poverty. Women already have income-generating activities. In most countries, the majority of small and medium scale enterprises (SMEs) are owned and operated by women, with women making up the majority of the work force. The enterprises tend to be concentrated around a relatively narrow range of activities, with relatively low rates of return compared to men's activities: beer brewing, knitting, dress making, crocheting, cane work and retail trading (especially the sale of prepared food). Despite the low financial returns, women's SMEs provide crucial sources of household incomes, even in male-headed households.

Women's SMEs use heat and light provided by purchased fuels such as biomass and kerosene. However, the role of energy in the sustainability of women's SMEs is not well understood. In food processing SMEs, it has been estimated that energy costs are 20 to 25% of the total inputs, which would indicate that technological inputs could possibly reduce energy costs. Women entrepreneurs do want technologies that improve their incomes and the

viability of their businesses. For example, women's groups in Uganda use solar dryers for fruit preservation, this gives them a better quality product and enables them to export 50,000 tons annually.

As was touched on in the last section, the energy sector is focusing on electricity. Electric lighting gives a high quality light which allows extended working hours in:

- production (for example, sawmills)
- services (for example, shops, hairdressers)
- cottage industries (for example, basket making)

However, the extent to which electricity can significantly contribute to moving people out of poverty is not clear (Cecelski, 2000). It is also unclear whether extending evening working hours adds to a woman's burden rather than improving her wellbeing. There is also a need to "move beyond the light bulb" and promote other productive uses of electricity, for example:

- solar powered lighting for pest control (India)
- solar refrigeration for fish (Indonesia)
- microhydro grain mills (Nepal).

Women's role in RETs

Up to this point, we have looked at the role of sustainable energy in terms of its contribution towards moving women and their families out of poverty. Women have only been seen, particularly by developers of technology, as passive users and consumers of renewable energy. However, women have a lot of accumulated knowledge and experience gained from using technologies with a clear set of criteria on what meets their needs. Perhaps these are not expressed in the formal language of science and engineering, but this is no reason to ignore women. Drawing on women's experiences, and working in partnership with women to develop RETs, will provide technologies that have a sustained use.

Figure 2 summarises other ways in which women have an active role to play in RETs.

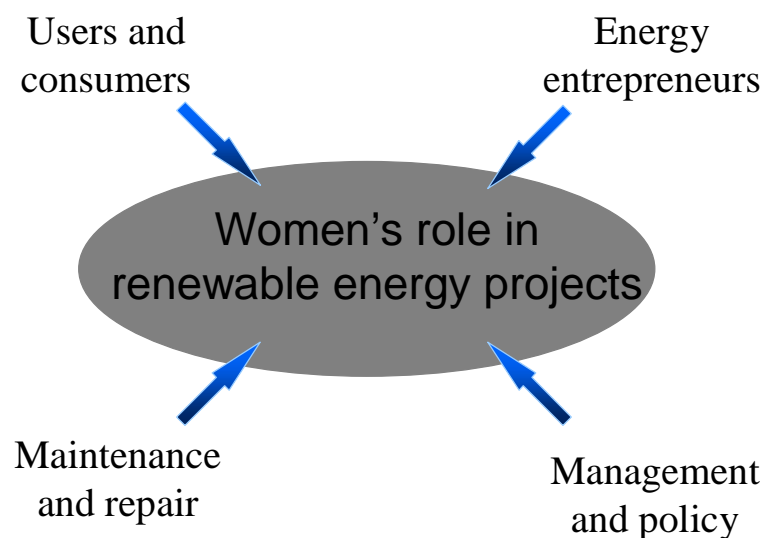


Figure 2 Women's role in renewable energy projects (taken from Cecelski, 1998)

Women as Energy Entrepreneurs

The liberalisation of energy markets is opening up new opportunities for the provision of energy services. Renewable Energy Service Companies (RESCOs) are springing up, many of which are focusing on rural areas, offering the potential of good incomes (Munyeme, 1999). Women should not be excluded from these opportunities – particularly when based on prejudices that women are not interested in technical matters. Women are already energy entrepreneurs, for example in West Africa supplying charcoal to urban markets. Women are good candidates to be successful energy entrepreneurs (Batliwala and Reddy, 1996). Women who live in rural areas know local circumstances and understand local needs. A woman may be able to sell more effectively to other women, and access to potential female clients is not hindered by social constraints.

While the financial barriers to women's entrepreneurship are well documented and a number of different approaches for addressing this constraint have been established, other barriers exist. Schemes designed to assist entrepreneurs to set up businesses supplying and servicing RETs can unwittingly discriminate against women. A project in Zambia, to establish solar home system installation and maintenance, provided training for interested entrepreneurs. One of the selection criteria was that the entrepreneur must have knowledge of electricity and electrical systems (Munyeme, 1999). This criterion ruled out most women. The project offered no supplementary training, and overlooked the possibility that a woman, despite not having technical skills, could successfully own and run a business (as so many already do) by employing people with the required technical skills. I am sure that many of the so-called "captains of industry" do not have a detailed scientific understanding of the products and processes of their business: they know how to produce an economic product, with a satisfied work force and customers, while complying with local customs and regulations. Women, it seems to me, can fill this role just as adequately as men.

Maintenance and repairs

In the early 1980s, many attempts were made to introduce RETs in rural areas. A substantial number soon fell into disuse because there was a lack of conveniently located maintenance and repair facilities. At the same time, similar experiences were occurring in the water sector following the introduction of hand pumps. However, the energy sector does not seem to have found the same solution as the water sector for curing this problem. The water sector switched from using men to using women for carrying out maintenance and repairs. Household water provision is women's responsibility – and therefore they have a bigger stake in ensuring that a service that potentially reduces the workload keeps working. In addition, women who gain new skills tend to stay in rural areas and use these skills, whereas men often migrate to urban areas.

Implementation and Policy

Policy can create an enabling environment that ensures access to more sustainable energy services. There is a need for more gender-sensitive energy policies that equally address women's and men's energy needs. One way of ensuring this engendered policy is through creating awareness in policy makers. More women as decision makers in the energy sector would be helpful, but men also have a role to play, and they need to be more gender sensitive. The same arguments apply at the implementation level. We need a critical mass of women in the energy sector to ensure that issues are raised in a concerted and consistent fashion. This critical mass of women and gender-sensitive men is also needed so that people trying to overcome institutional resistance to gender and energy issues do not feel isolated and threatened and so lose heart.

GENDER AND ENERGY IN THE NORTH

Before I end this presentation, I would like to spend a few moments looking at a gender issue in the energy sector in the North. One's first reaction to this statement might be one of surprise: are there any? Well any good researcher should not be put off by the fact that the reflex response to such a question is "no". Let us take a look at the energy sector in the North from a gendered perspective.

Gender and Poverty

Women in the North are not a homogeneous group. They differ in age, social status, and income. Poverty exists in the North, not to the same extent as in the South, but poverty is a relative term and is defined in relation to the society in which one lives. Poverty in the North has a gender dimension, due to the demographic facts of women living longer than men and women more frequently being heads of single parent families than men.

There is little published information on the gender aspects of energy use in the North (Clancy, 2001). However, we can begin with some basic data on how poverty impacts on energy choices. Northern climates create the need for space heating and cooling for significant parts of the year. Young children and older people have special heating requirements to reduce their vulnerability to illness. In the UK, spending more than 20% of household income on fuel is defined as "living in fuel poverty". In 1991, 7 million households (36% of the total) in the UK suffered from such fuel poverty. Heating and cooking for poor people can be problematic if they have no choice of energy form: electricity is expensive; and solid fuel produces smoke which has negative health impacts. Poor people live in housing with poor insulation, and frequently use second-hand equipment with poor energy efficiency. Poor people often have to pay for their electricity and gas through pre-payment systems which can result in a higher unit cost than that paid by households with monthly billing systems. All these factors contribute to the high energy costs borne by poor people. From only this brief analysis and the demographics mentioned above, we can reasonably conclude that there are more women than men living in energy poverty in the North.

Within higher income groups, women and men make different choices about energy equipment for the household. This means that energy conservation messages need to be targeted differently. Women tend to make decisions about small items for daily use in the household, while men make major investment decisions on insulation, hot water systems, and boilers.

Transport, a significant fuel consumer, has a distinct gender dimension: men tend to drive cars and women to use public transport. Appropriate messages to encourage men to switch to public transport are needed.

Working in the Energy Sector

The energy sector is predominantly male, although RE may well have a higher percentage of women than the more conventional fossil fuel and nuclear sectors. It is refreshing to see that there are more women participating in this ISES Congress than 20 years ago. There is a general problem that women do not opt for physical sciences and engineering (although these are not the only subjects that can lead to a professional career in the energy sector). The energy sector should view this with concern – they cannot afford to lose talented individuals

of either sex. There are signs that the sector is beginning to address the issue, for example, the European Commission has supported a project within the electricity industry to promote the employment of women professionals (ENEQO) (Clancy et al., 2001).

Women should also not miss out on the opportunity to be involved in solving one of the most important challenges facing humanity today; sustainable energy supplies. There needs to be more research on why women do not join, or do not remain, in the energy sector.

Women and Renewable Energy

Women are generally considered to be more favourable than men towards renewable energy, although there is no real scientific evidence to support this view. There has been some research that shows that women are more opposed to nuclear power than men (Clancy, 2001). Women scientific researchers do tend, more than their male counterparts, to be concerned about the wider implications of the work with which they are involved. Clearly this is an area that needs further exploration.

MOVING FORWARD

How can we help women move towards more sustainable energy services that will help them out of poverty? There are four broad areas in which we can work:

- Building up a body of evidence, on energy, poverty and gender issues, both in the South and the North. The information such case studies yields can provide the basis for advocacy and the indicators of more sustainable energy services that can help women move out of poverty
- Advocacy of issues, challenges and solutions for policy design. The case has to be made at international, regional and policy levels for the linkages between energy, poverty, and gender. Based on the accumulated body of evidence, policy options can be identified and formulated, decision makers in the South can be made more aware of the two energy concerns that women face in the South: cooking energy and labour. Decision makers in the North can be made aware that poverty in the North has an energy and gender dimension
- Women's energy capabilities need to be built up to enable them to work in advocacy or to be involved professionally in the delivery of sustainable energy services
- We also need to create networks and institutions which will work with women on developing energy services that meet their needs and sharing information on RETs that enable women to make informed choices about energy technologies.

These are areas in which ENERGIA is committed to work.

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