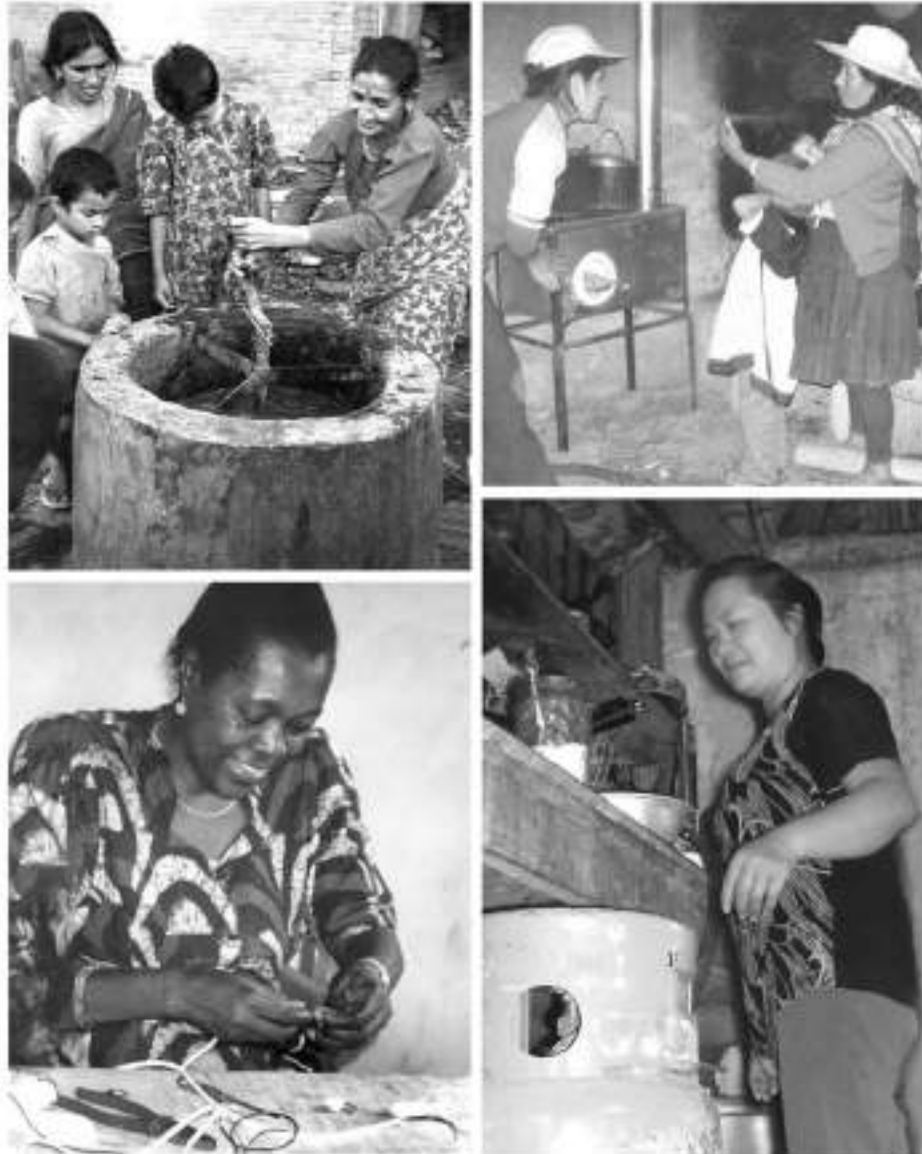


Where Energy is Women's Business



National and Regional Reports from
**Africa, Asia, Latin America
and the Pacific**

Edited by Gail Karlsson



ENERGINIA INTERNATIONAL NETWORK ON GENDER & SUSTAINABLE ENERGY

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Designed by Mary Zehngut

Photos on cover, clockwise from top left:

A woman in Nepal operates a bio-digester to produce biogas fuel.
Credit: ENERGIA Phase 3 Programme, 2006

An improved cook stove fitted with a chimney is used in a rural household in Bolivia.
Credit: EASE project, managed by ETC Foundation, 2006

A rural woman in Vietnam uses LPG to cook food in her restaurant business.
Credit: EASE project, managed by ETC Foundation, 2006

A woman in Ghana participates in the SAWA-TOOL training of trainers programme called 'Towards Technological Empowerment, Technical Training Modules for Women'.
Credit: Everts/SAWA-TOOL Project, 2000

Table of Contents

Foreword	5
Acknowledgements	7
Introduction: Energy as Women's Business	9
Regional reports:	
Africa	16
Asia	22
Latin America and the Caribbean	29
The Pacific	33
National Papers: Africa	37
Botswana	38
Ghana	42
Lesotho	46
Mali	51
Nigeria	55
Senegal	59
South Africa	63
Swaziland	67
Uganda	73
Zambia	78
Zimbabwe	81
National Papers: Asia	87
Bangladesh	88
India	92
Indonesia	96
Lao PDR	99
Nepal	102
Pakistan	108
Sri Lanka	112
Vietnam	116
Annexes	119
ANNEX 1. Priorities for Action for Women as a Major Group at CSD 15	120
ANNEX 2. Key Statements on Gender and Energy at CSD 14	122
ANNEX 3. International Affirmations on Gender, Sustainable Development and Energy	124
ANNEX 4. Readings and Resources on Gender and Energy Issues	126

Foreword

ENERGIA (the International Network on Gender and Sustainable Energy) has been a leading advocate for greater attention to women's energy needs in developing countries. In connection with the 14th and 15th sessions of the UN Commission on Sustainable Development (CSD 14 and 15) on energy and sustainable development, ENERGIA organised a number of activities at the national, regional and international level, with support from the Swedish International Development Cooperation Agency (Sida).

As a contribution to the energy policy discussions at CSD 14 and 15, ENERGIA supported national **multi-stakeholder consultations** in 19 countries: 11 in sub-Saharan Africa, and 8 in Asia. In addition, ENERGIA commissioned overview **regional reports** from Africa and Asia, as well as from the Pacific, and Latin America and the Caribbean. These activities were designed to move the discussions on gender and energy needs beyond generalities and offer specifically-targeted national and international policy recommendations.

The country-level consultations, which solicited information from a range of different sources, including government officials, non-government organisations, academics, researchers, development experts and international agencies, supplied the basis for the national papers contained in this book. These consultations provided important opportunities for government officials and non-government stakeholders to engage in national discussions and planning processes that would not otherwise have been available. In many cases these national consultations were the only NGO preparation for the CSD discussions on energy. In this way, ENERGIA has expanded participation in CSD processes to a broad variety of groups and experts in different countries, beyond those able to actually attend official CSD meetings.

As one of the coordinators for **Women as a Major Group at the CSD**, ENERGIA has helped facilitate concerted efforts to promote greater participation of women and integrate gender considerations into the official UN discussions. At CSD 14, the ENERGIA team worked with other groups in preparing a background Discussion Paper, making formal statements during the Multi-stakeholder Dialogues and at the Closing, and offering presentations, interventions and comments during the official CSD thematic and regional discussions.

Reflecting the inputs of many different organisations, the **Women's Closing Statement at CSD 14** included commitments by participating groups to work together with governments to:

- raise awareness about gender sensitive energy policies, programmes and projects;
- provide leadership for actions that recognise the critical role women play in the energy sector (as actors, not just recipients) so as to increase women's access to energy services and livelihood opportunities;
- participate in innovative financing initiatives;
- provide expertise for gender budgeting and auditing of energy policies and programmes (including Poverty Reduction Strategy Plans); and
- strengthen the capacity of women to participate in energy policies, decision-making and implementation.

ENERGIA is dedicated to pursuing these goals and ensuring that they are reflected in the Decision adopted at CSD 15.

Among the **challenges to be addressed during CSD 15** discussions on energy policies, the Chair's Summary from CSD 14 listed the following gender-related issues:

- enhancing the roles and status of women, as participants and agents of change (paragraph 36(g));
- integrating a gender perspective in planning, decision-making, management and implementation (paragraph 36 (g));
- providing access for all to reliable, affordable energy services, giving particular attention to the rural and urban poor, especially women, in order to meet basic human needs and the MDGs (paragraph 36(h)); and
- reducing air pollution, with particular attention to indoor air pollution from traditional biomass fuels and its health impacts on women and children (paragraph 36(l)).

By presenting the national papers and regional reports included in this volume, ENERGIA is providing specific country-level analyses and policy recommendations on energy and gender to more fully inform the policy discussions on the topics considered at CSD 15, in order that the policy document adopted at CSD 15 can include new targeted commitments and actions that recognise the important linkages between gender roles and energy policies.

Sheila Oparaocha and Ana Rojas, ENERGIA International Secretariat

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Introduction

Energy As Women's Business

Gail Karlsson,
ENERGIA Policy Advisor

“What does gender have to do with energy issues?”

This is a question that representatives of ENERGIA (the International Network on Gender and Sustainable Energy) are often asked.

For many people, the real puzzle is “What do women have to do with energy?” In many places, energy is primarily thought about in terms of electricity to run appliances and equipment, gasoline and diesel fuels for motors and vehicles, and delivery of oil or natural gas. Dealing with electricity and fuels is generally viewed as men's work, and women are not expected to be involved with power generation and fuel distribution.

For example, the ENERGIA-sponsored national paper from Lao PDR prepared for CSD 15 describes some common gender divisions: *“Energy is considered as dangerous and risky, in terms of the risks of electricity in private households and public facilities. Boys are expected to face and master these dangers. Whereas they are encouraged to get acquainted with electricity step by step, girls are kept away not only from electric power but from the power of knowledge. Men are primarily considered to be responsible for the technical side and the investments in thermal insulation of homes, boilers, and hot water installations. Electrical installation, plumbing, and installation of heating systems are male domains.”*

As a result of these differences in training and social expectations, women are not usually included in discussions about energy plans and policies. The Nepal national paper reports that the energy sector there is male-dominated and “considered to be a hard sector in which it is not necessary to consider gender as an important variable.”

However, where burning wood or other biomass fuels is a primary source of energy (as is the case for Nepal and most of the other countries discussed here) dealing with these fuels is commonly viewed as women's work. Lack of recognition of women's roles in the energy sector therefore leads to ‘gender-blind’ energy policies that fail to address some of the most pressing factors affecting countries' hopes for economic development.

In many developing countries, especially in the poorest areas, most energy currently comes from traditional biomass fuels such as wood, charcoal and agricultural wastes – and collecting and managing these fuels is strictly ‘women's business’.

Linkages between energy supplies and gender roles are strongest in countries with low availability of basic electricity and modern fuels, and a high dependence on biomass fuels for cooking, heating and lighting. This is not an issue affecting only a few isolated areas – for close to two billion people in developing countries, traditional biomass fuels are the primary source of energy.

In these countries, especially in Asia and Africa, cultural traditions make women responsible for gathering fuel and providing food, even when this involves long hours performing heavy physical labour that in other

places might be taken on by men. The Senegal national paper reports that many women spend 13 to 16 hours every day fetching firewood, drawing water, working the land, grinding cereal crops, making meals and cleaning up, “for which, of course, they are not remunerated”.

There is no intrinsic reason that women rather than men should be responsible for gathering wood and other agriculture-based fuels in these places – or that women in most countries should have so little say in national energy decision-making. It is largely a matter of traditional cultural roles.

It is time for national energy and development policies to acknowledge these linkages between energy, women’s work and national economics.

It is also time for greater attention to gender in energy investments and initiatives. The goal is not to remove women from the energy sector, but actually to involve them more, and in different ways, so that they can manage their energy supplies, their businesses and their lives more effectively and productively.

National papers and regional reports sponsored by ENERGIA provide country-specific profiles and policy recommendations from countries where gender and energy linkages are the strongest.

For many years, ENERGIA has been working to raise awareness about gender and energy linkages. One focus has been on advocacy at international meetings, including sessions of the UN Commission on Sustainable Development (CSD), and the World Summit on Sustainable Development. Another focus has been on building national and regional networks of experts, government officials, academics and civil society organisations in an effort to influence energy and development policies.

In preparation for discussions on access to energy at the 14th and 15th sessions of the CSD, ENERGIA commissioned several regional reports, as well as national consultations in countries where there are significant linkages between dependence on biomass for energy, women’s roles as energy suppliers, and poverty, especially in rural areas.

The regional reports cover Africa and Asia, where ENERGIA is most active, as well as Latin America, where ENERGIA has had collaborative relationships with regional networks, and the Pacific, where there is an active network of island states.

National papers were produced based on consultations in 19 countries, 11 in Africa (Botswana, Ghana, Lesotho, Mali, Nigeria, Senegal, South Africa, Swaziland, Uganda, Zambia and Zimbabwe) and 8 in Asia (Bangladesh, India, Indonesia, Lao PDR, Nepal, Pakistan, Sri Lanka, and Vietnam). The consultations generally included representatives from the government ministries, academic and research institutes, non-government organisations, women’s groups, and energy experts.

By compiling these national gender and energy papers and presenting them at CSD 15, ENERGIA has provided an opportunity for representatives of different countries – who may not be able to attend international meetings in person – to present their views on energy concerns and their recommendations for country-level energy policies, and international action.

Some of the common themes from the national papers are outlined here:

A. Dependence on biomass fuels is both an indicator of extreme poverty, and an obstacle to greater prosperity.

What is perhaps most striking about the national papers is that there are so many countries where poor women supply most of the country's current energy resources. In Mali, for example, the national paper shows that firewood and charcoal represent 80% of the country's national energy consumption; cooking is one of the major uses of biomass fuel, and in rural areas women spend more than one third of their time collecting wood. In 2002, 73% of the population was living on less than a dollar a day.

In Zambia, wood fuel use by households also accounts for over 80% of the country's total energy supply, and 53% of the people are 'extremely poor'. In Uganda, biomass accounts for over 90% of the total energy consumed, and the national paper reports that trade in biomass fuels contributes about US \$20 million to the rural economy and employs over 200,000 people.

In the poorer regions of Asia, there is a similar reliance on wood and other biomass fuels for cooking and heating. In Nepal and Lao PDR, biomass also provides about 80% of the total energy used in the country. In India approximately 625 million people cook with biomass.

In countries with high dependence on biomass, access to electricity is extremely limited, particularly in rural areas. In Mali, less than 12% of the population has access to electricity, in Zambia, only about 20% (and 2% in the rural areas). In India, almost 300 million have no access to electricity.

Even in countries where electricity access rates are somewhat higher, such as Ghana, with 50% of the population having access to electricity, biomass still represents almost two-thirds of all energy use. In Sri Lanka, almost two-third of the households are connected to the national grid, but 90% use biomass for cooking.

In rural areas, where electricity is available it is often used mainly for lighting and small appliances, and in poorer countries electricity does not replace the use of biomass fuels for cooking – even in the cities.

Expanded investments in energy are critical for achievement of the internationally accepted Millennium Development Goals (MDGs), since without better access to energy, many people in developing countries have little chance of escaping from lives of extreme poverty. However, national energy investments are not necessarily designed to ensure that the poorest members of the country are offered improved economic options. Without adequate energy, the poorest people lack essential factors necessary for economic and social progress – health care, education, clean water and sanitation, and employment opportunities.

Access to sustainable modern energy sources as an alternative to biomass is also critical for conservation of important forest and ecological resources on which communities rely. The national paper from Bangladesh reports that: *"As energy service providers remain out of touch with household and small business energy needs, and energy providers and users are oblivious to sustainable energy alternatives, there is an increasing likelihood of environmental degradation from continued reliance on traditional biomass fuel collection and combustion. Wood supplies are being depleted with the increasing demand for fuel, and agricultural productivity is affected by removal of organic matter from the fields."*

B. One of the most important ways of reducing poverty and promoting national development is by involving women in productive economic activity rather than wasting so much of their time and effort securing basic fuels for survival.

Besides being a constraint on general economic development, national dependence on biomass energy creates major limitations on women's opportunities for social advancement and the effectiveness of their work. Energy policies and interventions that recognise women's roles in the energy sector and build on their expertise and influence will be much more effective in promoting sustainable economic and social progress.

In places where traditional biomass fuels are collected and managed primarily by women, there are serious economic and social consequences. These activities substantially increase women's physical burdens, damage their health, and take up time that could otherwise be spent on caring for their families, educating themselves and their children, and engaging in income-producing activities. Burning biomass fuels is also a major contributing factor in high sickness and mortality rates for women and children.

According to the Zambia national paper: *"Poverty reduction can come from the energy sector by freeing up time for... women to engage in income-generating activities [and] providing women with cleaner and more efficient energy sources to enhance their productivity."*

Because women's labour is not highly valued, however, and their social and political status is everywhere lower than that of men, there is inadequate attention paid to the impacts of energy policies on women. As discussed in the national paper from India: *"Women's economic contribution to development is unpaid, unrecognised and undervalued, resulting in less attention being paid to technology development and investments aimed at improving women's work in comparison to men."*

Rather than viewing women merely as victims or potential beneficiaries of outside projects, it is more useful to consider how to create an enabling environment for economic development, and focus on creating better opportunities for women's business activities. If women can make money using new energy equipment, they can afford to pay for the equipment and the fuels required to operate it, and also earn additional income. For example, in many countries improved cooking devices (where they are available) are used by women to produce income from informal businesses, as well as to prepare food for their families. There have also been demonstrations that women's organisations can manage profitable energy-generating equipment, as shown by the success of the multifunctional village energy platforms in Mali and other West African countries, and the women's collectives producing electrical devices in Bangladesh.

C. Investments are needed in improved fuels and equipment - as much as access to electricity.

In order to expand access to energy most effectively, in ways that promote economic and social development, it is important to determine which types of energy services are needed most, and which ones will best support new income-producing enterprises. However, there is greater emphasis on access to electricity, and unless energy decision-makers fully recognise the implications of the current energy situation, they may make energy investments that do not effectively help the majority of people move out of poverty.

When national energy decisions are made, the focus is likely to be on expansion or improvement of electricity generating facilities and distribution lines, or supplies of fuel for the few who already have motor

vehicles and substantial business operations. In countries without an effective electrical grid, it may seem obvious that investments in improving the grid – often funded by overseas development assistance or government subsidies – will support much-needed economic and social development. But closer analysis may show that those who benefit the most are those in the country who already have the most.

The Botswana national paper emphasises that: *“It must never be assumed that women’s basic energy need is electricity, since women in rural areas generally continue to collect fuel wood for cooking even when the house has been connected to electricity.”*

In many cases, poorer families would be better served by increased investments in small-scale decentralised generating equipment, better management of natural resources, and distribution of alternative fuels that would relieve some of the existing burdens on women. Women in underserved areas need greater access to modern equipment and better fuels for cooking and heating, as well as lighting. They also need mechanical power for water pumping, food processing, and expansion of their small business enterprises, and for the community’s education and health facilities.

Some countries have begun to use subsidies to address the need for alternative fuels for cooking, thereby easing some of the burdens on women. In Senegal, for instance, the government has implemented a ‘butanisation’ programme that has reduced overall rates of dependence on biomass. Unfortunately the programme has not yet reached into the rural areas, where biomass fuel still accounts for close to three-quarters of all the household energy consumed.

South Africa has addressed thermal energy needs to some extent by setting up Integrated Energy Centres to increase access to commercial fuels, supporting a solar cooker programme, and investigating the introduction of gel fuel and increased access to liquefied petroleum gas (LPG). However, the South Africa national paper points out that there is more emphasis on access to electricity, and *“although women do benefit from electrification, a more balanced approach is needed, one that more directly takes women’s needs and traditional roles into account.”*

D. It is time to accept that women can, and already do, play an important role in the energy sector, and to engage them at a higher level in the dissemination of new energy technologies and more effective management of natural resources.

There are currently few women at the table when energy plans are made – and even fewer representatives from poor rural villages. The traditionally low status of women makes it difficult for women reach positions of authority, or for women’s concerns to be taken seriously, even when women are the ones responsible for the vast majority of the country’s current energy supply.

The energy contributions and needs of women have therefore remained largely unrecognised in most national policies, planning processes and development assistance efforts. Perhaps it seems somewhat embarrassing for governments to admit that poor, uneducated women dominate the country’s energy sector. Nevertheless, government officials need to acknowledge that in many places the energy business is in fact women’s business, and build on that base rather than ignoring or rejecting it. The Sri Lanka national paper, for example, calls for a ‘paradigm shift’ that takes into account the social orientation of energy, as well as profit, technology and supply factors.

One critical step is for governments to include more women's representatives in discussions about national energy plans and policy formulation. According to the Nigeria national paper, *"to devise development planning without participation of women is like using four fingers when you have ten."*

Increasing opportunities for women to participate in energy decision-making is an important aspect of ENERGIA's work, and the national consultations for the CSD discussions on energy have been very useful in providing opportunities for a wider range of views to be presented. The Lesotho national paper cites the government's involvement in the Gender and Energy Network of Lesotho (a national affiliate of ENERGIA) as an indication that that efforts are being made to create more opportunities for equal participation of women. In Zimbabwe, the consultative workshop sponsored by ENERGIA led to the formation of a multi-stakeholder group to work with the government in revising the national energy policy.

Some governments have already acted decisively to address inequities in energy policies. For instance, Uganda's government has recently established strategies in its Renewable Energy Policy to ensure that women play an important role, and Zambia's draft revised National Energy Policy promises to provide more gender-balanced development in the energy sector.

Many of the national papers also point out that women lack adequate financing for new equipment and fuels. The national paper from Lao PDR, for example, states that *"women do not always have access to new technology inputs because of lack of income, lack of access to credit or limited access to extension services."* These constraints are due to social and legal restrictions on women's rights, including rights to own land, borrow money and make their own economic decisions. Addressing these types of gender inequities will require changes, however, that go well beyond the energy sector.

A gender-balanced energy paradigm

Gender sensitivity in energy policies is not just a matter of taking women's feelings into account. It involves acceptance of existing economic realities for women, and new financial investments in energy infrastructure and services that will best promote economic and social development – for both men and women.

Some progress has already been made in terms of gender-sensitive economic analysis. In Nigeria, for example, the Ministry of Women's Affairs is working to mainstream gender concerns into the national budget. In Botswana, since an ENERGIA-supported 'gender audit' of government policies and programmes revealed that the national energy policy was formulated without involvement of women as a major stakeholder group, the government has moved to address gender equity, at least in its household energy supply policies.

As described in the India national paper, the paradigm shift required is one that changes government thinking from a 'subsidy mindset' regarding women to one that promotes the development of new enterprises for women in the energy sector: *"The role of women as energy providers can be transformed into suitable micro-enterprises if they can manage fuel wood or oil seed plantations, dispense kerosene or LPG, assemble solar panels, build cook stoves and brick kilns, and even manage electricity distribution and bill collection."*

Regional Reports



A woman in Nepal operates a bio-digester to produce biogas fuel.
Credit: ENERGIA Phase 3 Programme, 2006

Gender and Energy in Africa: Regional Initiatives and Challenges in Promoting Gender and Energy

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This paper focuses on the interrelationships between energy and gender, with specific reference to the African context. It draws on the results of national consultation processes in Africa which were sponsored by ENERGIA in preparation for CSD discussions on sustainable energy, as well as research, case studies and analytical work by ENERGIA Africa members, government agencies, international organisations, NGOs, universities and other regional sources.

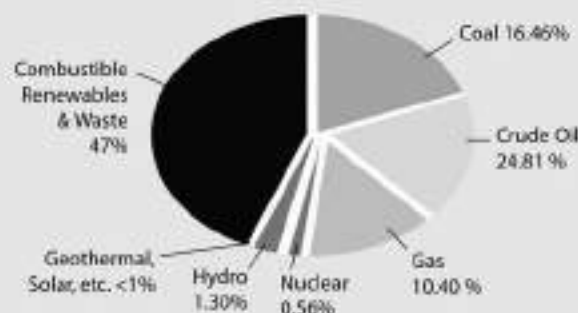
There is a growing consensus that energy has to be factored into development processes if the living conditions of poor women and men are to be properly understood and improved (ESMAP, 2005). A key component of this is the need to address the linkages between gender and energy, taking into account the specific ways in which the unequal relationships between women and men affect their ability to access cleaner and affordable fuels and energy technologies (UNDP/ENERGIA, 2004).

The paper reviews policies and actions to mainstream gender and energy issues² and makes recommendations for ensuring that gender concerns play a greater role in energy and environmental decision-making. Its objective is to enhance discussions on sustainable energy at CSD 15 and ensure that policy documents developed at CSD 15 include concrete commitments and actions to incorporate gender and energy considerations into decision-making in Africa.

Energy in Africa

Sub-Saharan Africa is the only region where the expansion of energy services has not matched the pace of population growth (Modi et al, 2006). This is in spite of the fact that the region has some appreciable stocks of energy resources in the form of oil, gas and coal resources, and hydropower. With 13% of the world's population, Africa consumes only 5.5% of the world's energy. In 2004, Africa produced 11% of the world's oil supply, yet generated only about 3% of the world's electricity, exporting more energy than it consumed.

FIGURE 1:
Primary Energy Supply by Fuel in Africa in 2002



Most African countries use oil for transportation, electricity generation and industrial production. A number of countries in sub-Saharan Africa rely extensively on hydropower for their electricity generation. South Africa is the only country with a significant use of coal. The consumption of gas is lim-

ited to the countries that produce it (Algeria, Liberia, Egypt, Tunisia, Nigeria, Cote d'Ivoire) and a few neighboring countries, due to the lack of trans-boundary pipelines. Since 1992 however, a West African sub-regional plan has sought to address the relationship between energy and economic development by working to establish projects such as the West African Gas Pipeline (WAGP) and the West African Power Pool Energy Exchanges (WAPP)³ system (ECOWAS, 2005). Renewable sources such as solar, geothermal and wind play an insignificant role so far.

Electricity consumption in Africa is the lowest compared with other regions of the world, only 514 kilowatt hours per capita (WEC, IEA, 2002). South Africa alone generates about half of the total African electricity (UNECA, 2006). IEA (2002) data indicate that electricity access rates range from 70% to over 94% in Northern Africa, with an average of only 23% in sub-Saharan Africa. There are wide disparities between countries, however, with less than 40% of Uganda's population having access to electricity, compared to 50.3% in Ghana; 66% in South Africa and a striking 100% in Mauritius. There are also differences between urban and rural areas; access can be as low as 1% in some rural communities. Where the availability of electricity is so limited and the costs high, there are considerable challenges in expanding access.

Many African countries have promoted large electrification programmes through grid extension to rural communities. Swaziland for example has over the last five years increased access to electricity in rural areas through its Rural Electrification Programme. The programme began in 2001 with a focus on the installation of high voltage lines to reach schools and other government institutions in rural communi-

ties, where local inhabitants are expected to benefit through their own connections. (Khumalo and Francis, 2006). Ghana has also implemented a National Electrification Scheme since 1989 to extend the reach of electricity to all parts of the country. Communities lying within a 20 kilometer radius of the national grid were expected to benefit from the scheme. A Self-Help Electrification Programme specifically targeted rural communities (Mensah-Kutin, 2002).

However, as shown in Figure 1, energy consumption in Africa is still largely dependent on combustible renewable resources (biomass, animal wastes, municipal and industrial wastes). Energy from biomass accounts for more than 30% of the energy consumed in all of Africa, and a much higher percentage in some countries: Burundi (91%); Rwanda and Central Africa Republic (90%); Mozambique (89%); Burkina Faso (87%); Ghana (63%); Benin (86%); Madagascar and Niger (85%) (FAO, 2005).

Thus, in many countries in Africa, most people rely on biomass or dung for cooking fuel and heat; on kerosene wick lamps, batteries or candles for lighting; and on human or animal energy based mechanical power for tilling and weeding land, crushing, grinding, agro-processing and transport. The poorest households spend a large portion of their total income and human resources on energy in order to meet basic requirements, and the lack of sufficient and reliable power prevents many enterprises from expanding the range and intensity of their activities.

Efforts to increase access to modern energy services have been slow due to a number of interrelated factors. These include low income levels of those who lack access; lack of financial resources for service providers to build the needed infrastructure and reduce barriers to access; weak institutional, financial and legal structures; and lack of a long-term vision and political commitment to scale up services (Modi et al, 2006).

Energy and Gender Issues in Africa

In Africa, women are responsible for the provision of products, labour and services as part of their household and family obligations, reciprocal relationships and mutual support. This is usually done as unpaid domestic work which is often treated as of no value in national accounts. Decision-making is largely in the hands of men, who assume that the unpaid work of women is free and forever available. Thus bearing and raising of children, preparing and growing food for the household, and gathering fuel and water appears invisible and insignificant in the understanding of economic development. Yet a lot of labour is required to provide the energy needed to meet these responsibilities. Women therefore find themselves having to bear a disproportionate share of the physical, emotional and spiritual strain of providing such energy resources.

Poverty

Access to affordable energy services is especially crucial for reducing poverty. The Millennium Development Goals include a target of reducing by half the number of people living in poverty by 2015. A 2004 World Bank review of poverty projections indicated that sub-Saharan Africa had witnessed

an increase rather than a reduction in poverty, from 41% to 46% of the population. Even though the MDGs do not specifically target energy supply, it is an underlying requirement to achieve most of the MDGs (UNECA, 2006).

'Energy poverty' has been defined as "the lack of sufficient choice that would give access to adequate, affordable, effective and environmentally sustainable energy services that could support economic and human development" (Reddy, 2000). The largest concentrations of energy poverty are found in sub-Saharan Africa, with women suffering most from the worst forms of poverty. Thus to achieve targets set to address global poverty, the particular energy concerns of women in Africa must be prioritised and addressed through gender sensitive policies and programmes (UNDP/ENERGIA, 2004). Such policies must also question the underlying assumptions and biases of macro-economic frameworks.

Cooking fuel

In Africa, women and girls spend long hours every day collecting wood, agricultural residues and dung for use as fuel – time that could be used for more productive activities such as income generation, agricultural production or education. In this situation women and girls are likely to benefit most when there is increased access to improved energy services. There are, however, variations among countries as time spent gathering biomass depends on geographical location, land ownership, time of year, climatic events and loss of control over local resources.

There is a need for liquefied petroleum gas (LPG) and other cleaner fuels to provide affordable alternatives to traditional biomass-based cooking and heating fuels, but the development of advanced and cleaner energy technologies and fuels has generally not been perceived as a high priority in Africa. In some countries the rate of access to LPG, for example, is lower than 5% (ECOWAS, 2005). Senegal has been a pioneer in the region in terms of the efforts it has made to make butane affordable and easily available, at least in urban areas. But generally, women in rural and peri-urban areas in Africa are compelled to use charcoal and fuel wood (ECOWAS, 2005).

Water supplies

The need to fetch water also has implications for women and girls. In the face of unreliable water access, women and girls have to walk long distances to fetch and carry water in plastic containers from wells, rivers, or streams. It has been estimated that women in developing countries spend an average of 134 minutes a day collecting water for their households (Rosen and Vincent, 1999). Much of this time could be used more productively if mechanical power from a windmill, diesel generator or electrical motor could be used to lift the water to a storage tank. Electric or fuel-operated pumps could ensure closer access to water supplies.

Health

In rural and urban poor households, women spend long hours cooking meals over traditional open fires, without proper ventilation. Often babies are strapped at the back of their mothers while younger children are cared for in the smoky

environment, exposing them to toxic fumes and pollutants. The World Health Organization estimates that the impact of indoor air pollution on morbidity and premature deaths of women and children is the main public health issue in Africa, especially among the poorest sections of the population (Modi et al., 2006). Diseases associated with indoor air pollution include pneumonia, chronic respiratory diseases, and lung cancer (Modi et al., 2006). Other diseases associated with indoor air pollution include asthma, bronchitis, tuberculosis, cataracts, low birth weight and heart disease. The majority of victims of exposure to indoor air pollution are women and children. It is therefore important to provide energy-related options for reducing exposure levels and advancing the health of women and children in Africa.

Transportation

In rural areas in Africa, the lack of reliable, efficient and affordable transportation systems means that women and girls in rural communities have to carry heavy loads and walk far distances to markets to sell their food items or, where it is available, use unreliable public transportation services that charge high fares. Even in urban areas, women are less likely to own cars than men, and tend to use public transport the most. The rising cost of petroleum products on the international market has further worsened the situation. Many African governments have removed all subsidies on petroleum products, without considering the ways in which women suffer from petroleum price increases.

A Sustainable Transport Action Network for Africa (Sustran-Africa), which is a UN-Habitat project, has been established to promote the adoption of suitable and sustainable transport. It is a regional network initiative, which includes the identification of African urban centres that are implementing sustainable transport initiatives, with priority given to projects in Senegal, Ghana, South Africa, Tanzania, Uganda and Kenya. But this project has been provided to benefit the general public, with no consideration of the specific needs of women.

Electricity

The majority of women and men in Africa live in rural and peri-urban areas where current levels of access to electricity and modern energy services and resources do not meet basic requirements. Availability of electricity has significant impacts on women's lives in terms of access to better lighting systems, use of radios and television, and enhanced ability to work and study at night (Mensah-Kutin, 2002). In addition to extensions of electricity grids, the installation of decentralised small-scale energy systems powered by diesel fuel or by renewable technologies using solar, mini-hydro, wind or biomass resources can be used to meet energy needs. Distribution of energy-efficient end-use technologies is also critical for minimising total fuel and electricity requirements (UNDP/ENERGIA, 2004).

Generally, initiatives to promote the reach of electricity have been carried out in Africa as part of reforms undertaken to change regulatory frameworks and to privatise the electricity sub-sector, with a view to increasing its financial viability

(ECOWAS, 2005). In some situations, subsidies have enabled rural households to connect to electricity under rural electrification programmes.³ But in many cases there has been a low connection rate among rural households, and the programmes have not been strong on specific gender considerations.

Energy Policies

In Africa, regional commitments, targets and goals to address energy concerns include: energy accessibility for poverty alleviation; changing patterns of energy consumption and production; developing advanced and clearer energy technologies; and general cross-cutting issues (UNECA, 2006). An examination of regional policies and programmes by the UN Economic Commission for Africa in preparation for CSD 14 shows no emphasis on gender concerns (UNECA, 2006). In none of the policy initiatives discussed in the UNECA review document are women specifically targeted, or gender issues considered, even though gender is identified as one of the cross-cutting issues.

Energy policies and projects have tended to be conceived and implemented from a gender blind perspective, despite the many international agreements and conventions that African governments have signed to promote sustainable development, gender equality and environmental protection. Energy planning is generally done using a top-down approach, seeking to increase supplies of fuel or electricity for industrial and urban uses, with low interest in women's specific energy needs and concerns.

Energy sector reform

Energy sector restructuring exercises have tended to focus primarily on cost-recovery measures, regulatory and legal frameworks, privatisation, and technical problems (Modi et al., 2006). While some of such measures are useful, their uncritical application and the lack of sufficient interest in promoting gender concerns, have proved problematic. They have tended to orient energy initiatives towards profit making, rather than promoting easy and affordable access, improving reliability for current users, and expanding services to benefit new customers in line with MDG goals and objectives. Thus areas such as small-scale informal productive activities, domestic tasks and agricultural work where women actively participate are not factored into many national and local initiatives.

A major underlying cause for this state of affairs is that energy policies in Africa have been formulated as part of overall economic policy frameworks which have proved ineffective in addressing the development concerns of women and men. These policies are rooted in the broad neo-liberal economic frameworks that have been implemented since the 1980s. Such policies have had negative implications for women, ignoring prevailing socio-economic realities, laws, customs and practices in individual countries that often restrict or prevent women from actively participating in decision-making or having independent access to control of income and ownership of property (Tsikata and Kerr, 2001).

Poverty Reduction Strategy Plans

Since 2000, many countries have drawn up Poverty Reduction Strategy Papers (PRSPs) for qualification as Highly Indebted Poor Countries (HIPC) in order to obtain support from International Financial Institutions (IFIs). PRSPs are now the medium-term (3-5 year) reference frameworks for budgetary planning strategies and programmes aimed at reducing poverty in countries eligible for the HIPC initiative. In Africa most countries have based their PRSPs on three priorities: building the capacities of and reforming state institutions; improving economic productivity; and increasing access to basic services (ECOWAS, 2005).

To date, PRSPs have paid little attention to energy and how it affects health, education and other social services. There is also very little connection established between energy services and poverty reduction. Worst of all, PRSPs do not sufficiently focus on women or gender issues. The limited links between gender and poverty merely focus on women's welfare needs, specifically, women's responsibilities for maintaining their families and the need to reduce their work burdens. Very little interest has been shown in terms of enhancing women's voices and power as a means of changing unequal relations between women and men to address women's experience of poverty. Generally women's participation in development projects has been viewed as a way of increasing productive activity rather than promoting their own rights in access to and control over resources and decision-making.

Participation of women in policy-making processes.

The overriding interest in promoting specific energy technologies has led to a neglect of the gender specific inequalities in access to and control of affordable energy services. Thus within the region, in spite of the positive impacts on women of some energy initiatives, there is no indication that energy policies, programmes and projects are creating opportunities for transforming the gendered relationships between women and men, with a view to reversing years of discrimination against women. To accomplish this, energy policies must not only target women, they must actively seek the participation of women in making the appropriate decisions on enhanced energy service.

The lack of sufficient participation of women in decision-making processes generally, and energy sector decision-making specifically, is part of the problem, although the African region as a whole has made important strides in women's participation in politics and decision-making. Through the use of quota systems, the participation of women on the African continent in the past few years has been greater than that experienced at any other time in the past four decades, rising more than ten-fold to over 14% in 2003. Over 20 countries in the region either have legislated quotas or political parties that have adopted them voluntarily (IDEA, 2004). These measures have contributed directly to the increase in the number of women in legislatures. In 1995, the average representation of women in sub-Saharan Africa was 9.8 per cent; it had increased to 15.1 per cent by 2004 (IDEA, 2004). There are clear disparities in different countries, with Rwanda topping the list worldwide. There are also variations in representation in

various sectors, with the energy sector being among those with minimal representation.

There are situations where women's participation in decision-making becomes flawed due to the fact that some women tend to represent sectional interests rather than the majority of women. There is also no guarantee that women decision-makers will address energy issues from a gender perspective, as there is often insufficient understanding of the issues on the part of women leaders. There is also a low proportion of women professionals in the energy sector, even in situations where affirmative action policies have been implemented to increase women's participation in decision-making across the board (Wamukonya, 2002).

There have been attempts at increasing women's participation in energy decision-making through the establishment of gender desks across energy ministries, departments and agencies. These are often staffed by women who are expected to integrate gender considerations into policies and planning. The reality, however, is that such offices are often isolated and have few linkages with other ministries and critical institutions. Such structures, which are similar to national level institutional mechanisms for women, also lack the needed budgets and mainly rely on irregular donor funding, which makes the work unsustainable (Mama, 2000).

Recommendations

In light of the foregoing, and a review of the national consultations sponsored by ENERGIA in Africa, the following recommendations are presented for effective engagement of women and the promotion of gender concerns into overall energy planning, policies and decision-making processes at the national, regional and international level.

National governments should:

- Decide on their own specific approaches to industrial and social development – taking into account their level, rate and pace of development, based on their own capacity – and focus on the real needs of poor women and men, especially in terms of promoting equity.
- Provide incentives to promote alternative and modern sources of energy to benefit poor women and men. This requires a move away from over-dependence on fossil fuels, especially in the face of soaring fuel prices, to renewable energy and energy efficiency, which will create benefits for women such as job generation, market opportunities, and greater energy self-reliance.
- Identify the energy services that are of primary importance to women and consider options for providing those services, including affordable access to modern fuels to address cooking, heating and food processing needs and reduce reliance on fuel wood and traditional uses of biomass materials.
- Consider energy needs within the context of community life and adopt an integrated approach to energy projects that creates linkages with efforts in health, education,

agriculture and job creation, taking into account gender and socio-economic specificities.

- Create greater awareness about gender issues among policy-makers and address gender biases in national policy documents and the provision of energy services. When energy policies are engendered, they are more likely to target women and men with relevant energy technologies and services that address their needs.
- Promote effective participation of women in the formulation and implementation of energy policies through affirmative action policies requiring women to hold 40% of all key positions in public sector institutions and collaboration with women's organisations to strengthen women's capacities to enhance their effectiveness in policy-making. Even though participation of women by itself cannot guarantee sensitivity to gender and energy issues, the women's movement can provide the needed support to promote commitment.
- Collect and use data that is disaggregated by sex and other social and economic variables to establish the specific energy use patterns of women and men in different contexts. This process could benefit greatly from an integrated approach to information gathering and utilisation.
- Use gender budgeting to target specific energy requirements of women and ensure that women's energy needs receive necessary budgetary allocations.

At the regional level:

- Meet commitments on energy, such as those made under NEPAD and the Forum of Energy Ministers of Africa (FEMA), to: prioritise rural and peri-urban areas for specific investments to increase access to domestic cooking fuels, access to motive power to increase productivity and the quality of community services; increase access to electricity services; and ensure that poor women fully benefit from these opportunities – as a means of achieving MDG targets.
- Enhance regional cooperation to increase women's access to energy in rural and peri-urban areas through capacity-building, resource mobilisation, knowledge creation and sharing, and local manufacture of local energy services. For this process to lead to improved gender relations, there is a need to facilitate the development of a critical mass of women and men at the African regional level to facilitate the development of the capacities of regional energy institutions to engage with gender issues.
- Expand regional energy policies on transportation beyond a focus on energy efficiency and mass transportation in urban areas and also work to make transportation accessible and affordable for rural women.

International organisations:

- The CSD should provide leadership in supporting a rights-based and gender-responsive approach to energy policy planning and implementation, as opposed to the World Trade Organisation's push for privatisation of basic energy services and facilities due to trade pressures in connection with the General Agreements on Trade and Services (GATS).
- A global fund on energy should be established for financing, research, production and promotion of renewable energy sources (such as solar, wind, and biofuels). Nuclear energy and fossil fuel development efforts should be phased out, as they are unsustainable, polluting, and dangerous, and a major worry for women the world over.
- The CSD must ensure that a gender balance is established in its own panels, bureau and on delegations, in order to honor international commitments to promote women's equality with men in all decision-making processes.

Conclusion

Within the African context, policies of privatisation in the energy sector have formed part of the economic reform agenda. The involvement of private companies as major players in the energy sector means that the profit motive is prioritised. This means that rural and urban poor women are not served in many situations.

Where gender has been considered in energy policies, interventions have seen women as recipients or beneficiaries of projects and programmes, rather than as actors and decision-makers. Building upon the insights provided by women's networks on energy it is important to adopt a more gendered approach to energy planning and implementation processes.

Energy planning needs to be done with the active involvement of women, with the objective of providing energy services at affordable cost, rather than securing particular fuel supplies. A rights-based and service-oriented approach promotes a strong linkage between energy and other socio-economic development initiatives on health, agriculture, transport, education and water.

However, the economic reform agenda, and its application in the energy sector in particular, make the implementation of a rights-based and service-oriented approach a huge challenge. Some countries have established regulatory mechanisms to facilitate effective negotiation among different actors with varied interests to promote greater access for poor women and men. There have also been interventions, especially from civil society, to make governments responsible for providing household services.

But for the majority of the unserved urban and rural poor women of Africa, a major concerted effort by all African governments is required, with effective support from the international community, to ensure that modern energy services are easily accessible and affordable, and promote improved relationships between women and men on an equal basis.

Endnotes

1. 'Mainstreaming' is a contested concept. Originally conceived of as a process that could transform the relationships, structures and processes of gender inequalities, the concept has largely been applied to meet criteria set under specific donor funded projects. For an elaboration and a critique of the concept, see Verloo, 2001 and Walby, 2001.

2. The WAPP consists of a master plan for the development of energy production means and inter-connecting grids. It seeks to inter-connect national grids across 5,600 km in most West African countries: Nigeria, Benin, Togo, Ghana, Cote d'Ivoire, Niger, Burkina Faso and Mali. The ECOWAS region is expected to have an installed capacity of 17,000 MW which is estimated to be sufficient for energy demand until 2023 (ECOWAS, 2005). The WAGP project is expected to complement the WAPP regional strategy for the development of WAPP hydro-electricity. The 687 km pipeline is expected to supply thermal power stations in Ghana, Benin and Togo and yield a capacity of 3,000 MW in 20 years.

3. The government of Ghana for example, had a policy of subsidising the initial cost of connecting electricity to households in rural communities. This became an incentive for many households to gain access especially in 1999. Extremely poor households which were often headed by women could not benefit from this facility, with most continuing to use kerosene for lighting.

References/Readings

BP, 2005. Statistical Review of the World Energy. www.bp.com

ECOWAS, 2005. White Paper for A Regional Policy. UNDP and French Ministry of Foreign Affairs

ESMAP, 2005. Advancing Bio energy for Sustainable Development: Guidelines for Policy Makers and Investors, Volumes I, II and III, Energy Sector Management Programme, Energy and Water Department, The World Bank, USA

FAO, 2005. FAO Report to African Regional Review Meeting for CSD14

IDEA, 2004. The Implementation of Quotas: African Experiences. Trydelis and Trycheris AB : Stockholm

IEA, 2002. IEA Key Energy Statistics. www.iea.org

Khumalo, Khetsiwe and Amy Francis, 2006. Energy and Gender Issues Within Swaziland. ENERGIA. National Paper for the 14th Session of the UN Commission On Sustainable Development

Mama, Amina, 2000. National Machinery for Women in Africa: Towards an Analysis, National Machinery series No. 1, Third World Network Africa Secretariat : Accra

Mensah-Kutin, R, 2002. Gendered Experiences Of Access To Electric Power: The Case of A Rural Electrification Programme In Ghana. University of Birmingham: Unpublished PhD Thesis

Modi, McDade, Lallement, and Saghir, 2006. Energy and the Millenium Development Goals. Energy Sector Management Assistance Programme, UNDP, UN Millennium Project, and World Bank

Reddy, A.K.N., 2000. "Goals, Strategies and Policies for Rural Energy". Economic and Political Weekly 34(49): 3435-45

Rosen, S. and J. R. Vincent, 1999. Household Water Resources and Rural Productivity in sub-Saharan Africa: A Review of the Evidence. Harvard Institute for International Development Paper DDP No. 673. Available at www.cid.harvard.edu/hiid

Tsikata, Dzodzi and Joanna Keer, 2000. Demanding Dignity: Women Confronting Economic Reforms In Africa. The North South Institute and Third World Network-Africa

UNECA, 2006. African Regional Implementation Review For the 14th Session of the Commission on Sustainable Development (CSD 14)

UNDP and ENERGIA, 2004. Gender and Energy for Sustainable Development: A Toolkit and Resource Guide

Verloo, Mieke, 2001. Another Velvet Revolution? Gender Mainstreaming and the Politics of Implementation. IWM Working Paper No. 5/2001: Vienna

Walby, Sylvia, 2005. Gender Mainstreaming: Productive Tensions in Theory and Practice. Oxford University Press

Wamukonya, Njeri, 2002. A Critical Look at Gender and Energy Mainstreaming in Africa, Draft paper. Available at www.un.org/womenwatch/daw/forum-sustdev/Njeri-paper.pdf.

WEC, IEA, 2002. World Energy Council data, www.wec.org

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“Energy sector restructuring exercises have tended to focus primarily on cost-recovery measures, regulatory and legal frameworks, privatisation, and technical problems ... Thus areas such as small-scale informal productive activities, domestic tasks and agricultural work where women actively participate are not factored into many national and local initiatives.”

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Gender and Energy in Asia

Regional Initiatives and Progress in Mainstreaming Gender and Energy

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This regional report briefly describes gender and energy issues in Asia, highlights regional initiatives and progress made in mainstreaming gender into energy projects and policies, and recommends actions for furthering implementation of the Millennium Development Goals. It is expected that the report will enrich the discussions at CSD 14 and 15 and help produce a promising agenda for efficient and effective integration of gender and energy into sustainable development.

Influenced by international initiatives, including the Millennium Development Goals (MDGs), some progressive changes have been made in the development paradigm with regard to linkages between poverty, gender and energy. Still, there are persistent culturally-based inequalities between men and women in the region that significantly limit women's rights, and their access to energy services. Traditional domestic energy supplies are based on women's unpaid labour, without proper recognition in national accounting, energy sector policies or development planning processes. Engagement of women as entrepreneurs in a transition to modern energy carriers, including modern biomass technologies, could create new economic opportunities for women while also greatly expanding access to energy in the region.

Some key recommendations include the following:

- Formulating national strategies that specifically address gender issues and the social context in which energy is used, with clearly defined gender and energy targets and time frames related to promoting the implementation of MDGs;
- Broadening the energy sector to include cooking energy as a priority rather than a peripheral matter; and
- Promoting entrepreneurship development and expanded use of energy for productive enterprises, increasing the share of earned income of women in the region, and using subsidies, financing and credit facilities to remove obstacles faced by women.

Development, Gender and Energy

A progressive change in the paradigm of development has taken place in Asia regarding the synergy between development goals, gender and energy. In practical terms, for policy makers and activists the integration of 'gender' and 'energy' has been difficult. Until recently energy has been considered primarily from the technical and commercial points of views, without much attention to its social context. Gender, however, is seen as a social construct that has evolved throughout human civilization, with features deeply rooted in cultures and traditions. In Asian societies there is great resistance to transforming the cultures under which men's and women's roles in a given society, environment and livelihood system have been established.

Nevertheless, international initiatives promoting women's rights and gender awareness have had a significant impact, including: the 1975 International Women's Year followed up by the United Nations International Women's Decade, which launched initiatives on women in development across the world; the 1979 Convention on the Elimination of all Forms of Discrimination Against Women; the 1993 Vienna Declaration on the Elimination of Violence Against Women made at the UN World Conference on Human Rights, which made it clear that the human rights of women and of the girl-

child are inalienable, integral and invisible part of universal human rights; and the Beijing Declaration of 1995, made at the UN Fourth World Conference on Women, which called for universal action to improve the status of women in 12 strategic areas.

Most recently, in 2000 the UN General Assembly endorsed the Millennium Development Goals, which included the goal of promoting gender equality and empowerment of women as the third goal out of eight. In Asia, the strategic goals and global declarations that have been discussed in many forums have enabled countries and cultures to examine the gaps between men and women, and have provided windows of opportunity for integrating gender into mainstream development.

Background on Energy in Asia

More than 50% of the world population of 6.1 billion lives in the Asia Pacific region. Although total energy use in the region is high, per capita energy use is low and only marginally above sub-Saharan Africa. The total energy picture is important from two perspectives. The first involves how far the region can proceed in providing energy in order to further the implementation of the MDGs. The second is to what extent energy solutions in this region can provide feasible solutions to gen-

der issues while dealing with the emerging concerns over development?

World comparisons reveal that in 2001 the industrial countries used 4.7 tonnes of oil equivalent (toe) per capita, while sub-Saharan Africa and the Asia Pacific region used only 0.8 toe per capita, less than 50% of the world average of 1.7 toe per capita. In a development context, and also from the perspective of eradicating imbalances in global equality, Asia should draw special attention.

Meeting increasing energy demand, enhancing energy services for those who do not have access, and providing energy supplies for economic growth and poverty alleviation, are crucial issues. A breakdown of primary energy use by the regions reveals that in 2001, the Asia Pacific region used around 2.31 Gtoe (UNDP, 2004). In terms of primary energy mix, nearly 39% was derived from coal, 24.5% from crude oil, 24% from combustible renewable and waste, 7.3% from gas, 1.7% from hydro, 0.9% from petroleum products, 0.8% from nuclear and 0.5% from geothermal, solar and other renewable technologies. In regard to electricity generation, the general overview shows that out of the total of 2,795 TeraWatt Hours (TWh) of electricity 63.6% was generated from coal, 16.1% from hydro, 10.2% from gas, 6.6% from geothermal, solar etc. and 0.2% from combustible renewable and waste.

Extended analysis reveals that energy usage varies greatly between the countries in the region. (See Table 1 below.)

A substantial percentage of the total energy used in Asia is derived from biomass energy, providing heat and light, and in some areas motive power as well. In Asia, as in Africa and Latin America, the percentage of biomass in the total energy

picture is higher than the world-wide percentage, which is around 11%. Biomass energy accounted for nearly 25% of the total primary energy of 93.7 exajoules (EJ) a year. In terms of total final energy consumption it accounted for around 34.6% of 66.7 exajoules a year (ESMAP, 2005).

It is also important to note that biomass energy is primarily produced using traditional technology and unrefined solid fuels such as firewood, crop residues, animal dung and charcoal. Improved biomass energy technology or modern equipment is only used in a few countries.

Looking at the energy sector profile in Asia there is clearly a need for greater access to clean and affordable energy services by the poor, and in that context gender and energy linkages could be strengthened. Poor people and women are on the periphery of the energy system in many countries, particularly regarding per capita use, modern energy access and productive use of energy. There are strong correlations between low electricity consumption per capita and poverty concentration patterns. Table 1 shows that electricity consumption per capita in developed countries such as Japan and Singapore is well over 100 times higher than in the countries like India, Pakistan, Sri Lanka and Vietnam where GDP per capita is low.

The Asia region accounts for nearly two thirds of the total poor in the world. In 1998, 40% of the people in South Asia alone lived on less than a dollar a day, and around 15% in East Asia and the Pacific (IFAD, 2002). The human development values and gender development indexes for South Asia, East Asia, and Asia and the Pacific also show substantial variations in the region, with the lowest levels of achievement in South Asia. Urgent strategic energy measures are needed to address

TABLE 1

Electricity consumption by sectors/consumer group (2001), GDP per capita and wood energy as a % of total energy in some selected countries

Country	Per Capita (2000)	Total Consumption	Industry	Agriculture	Public Service	Commerce	Household	GDP, per capita as \$	Wood as a % of total energy*
Bhutan	210	384	267	Na	41	17	53	214	81
HKChina	5305	37261	4655	-	102	23393	9111	23579	
India	317	315716	107594	84341	10310	22260	75079	453	30
Indonesia	382	84520	35593	Na	4192	11395	33340	674	29
Japan	6668	865607	405651	1602	7220	157930	247368	342276	
Ma-China	3606	1594	138	Na	164	769	523	na	8
Malaysia	2693	65003	34053	0	0	18352	12563	3613	8
Nepal	58	1300 (1999)	520(2000)			296(2000)	481(2000)	218	
Pakistan	304	43384	11744	4896	147	2121	20018	487	79
Singapore	7482	29642	11482	Na	Na	12173	5985	22072	
Sri Lanka	276	5236	1907	-	77	1029	2127	836	64
Thailand	1423	92290	41904	178	778	27913	21070	2000	17
Viet Nam	269	24406	10503	0	1251	-	12651	373	48

Data source: UN-ESCAP *Electronic Power in Asia and the Pacific 1999 and 2000*; * RWEDP – Field document No. 50 (1999).

these challenging situations, and help move women into modern energy systems.

Women's roles in the energy system

The energy system uses different types of fuel, equipment and supply sectors to deliver services such as illumination, cooked food, heating, refrigeration, communications, education, transportation and motive power. Gender roles in energy systems depend on the type of energy being considered, available livelihood opportunities, the nature of the assets involved and the social status of women. (See Table 2 below.)

In countries where a substantial share of primary energy is supplied from biomass – such as in Sri Lanka, Vietnam, Bangladesh, Myanmar and Nepal – biomass is an affordable and accessible source of energy (Heruela, 2000). Women's involvement in the biomass system from production to service generation is also high (Wickramasinghe, 2004). If women can retain their energy roles using technology through which biomass feedstock can be transformed to modern energy carriers with commercial opportunities, this would be a win-win situation. Economic empowerment could be promoted by creating economic opportunities for women using modern energy technology, while enhancing women's capacity to access energy services through income generation.

Shift in the gender and energy paradigm

Some progressive changes in the paradigm of gender and energy have occurred in Asia in response to global efforts. From Rio to Beijing, Beijing to Johannesburg, and then from Johannesburg to CSD 14, a very strong synergy has been structured between gender, energy and sustainable development. The Millennium Development Goals have sparked changes by creating space for strong discussions about integrating gender and energy into sustainable development and poverty reduction efforts. Issues related to the lack of access to affordable and clean energy sources have broadened the energy paradigm and make it a paradigm of integrated development. The synergy between energy and all aspects of development – social, economic and environmental – including poverty, hunger, education, and gender, has been demonstrated, and there is wider understanding about the importance of equal access to affordable, clean and modern energy services for sustainable development.

There are several mutually reinforcing linkages among gender, energy, poverty, environmental degradation, environmental health and living conditions. Research done in Asia on the indoor air pollution documents the health repercussions faced by women due to their engagement in providing and converting biomass to energy through combustion inside poorly ventilated housing (Dara, 2000; Pandey, 1998 and

TABLE 2

Roles of women in the energy system by major types of energy in Asia

Energy type	Roles of women	Status of women
Biomass	<ul style="list-style-type: none"> • Maintaining vegetation cover through farming/growing tree crops • Harvesting, gathering, processing and transporting wood in bulk • Converting raw wood into heat through combustion • Providing energy services – energy for cooking, boiling water, preparing medicine for home remedies, heating, processing food and crops; • Managing biomass fuel stocks at the household level to even out variations in availability; • Maintaining traditional end use technology – cook stoves and earthen hearths/kilns. 	<ul style="list-style-type: none"> • Social sector/key stakeholders responsible for all upstream activities, conversion of primary energy to useful energy and providers of energy services • Resourceless customary users • Unpaid family labour source • Unauthorised access to sources and management.
Electricity	<ul style="list-style-type: none"> • Providing primary sources for electricity generation (dendro, biogas) • Managing/contributing to renewable energy resources • Undertaking the responsibility of sustainable management of technology • Sustaining primary energy supply chain for electricity generation • Contributing to conservation of sources and resources 	<ul style="list-style-type: none"> • Consumers of energy services (cooking, lighting, communication, mechanisation, water pumping) • Managers of off-grid electricity supply plants • Custodians of decentralised energy supply system • Managers of primary energy sources • Energy entrepreneurs • Partners of energy organisations • Organisers of local demand for energy carriers
Fossil fuel	<ul style="list-style-type: none"> • Managing production (SMEs) and cottage based industry • Adopting energy efficient technologies and appliances • Promoting micro-enterprise and enhancing market economy • Reducing wastage. 	<ul style="list-style-type: none"> • Consumers of energy services (transportation, lighting, water pumping, irrigating, grinding, processing, industry etc.) • Organisers of local demand for energy carriers

2000; Parikh et. al, 1999 and Parikh, 2000). A review of World Bank studies, for example in Cambodia, Lao PDR and Vietnam, also shows the reinforcing linkages among poverty, environmental damage and environmental health problems related to the energy policies of these countries (World Bank, 2004). The entry points contributing to greater consideration of gender equality include global as well as local initiatives. The 1948 Universal Declaration of Human Rights, the 1979 Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), the Women's Decade between 1976 and 1986 and the 1995 United Nations Fourth World Conference on Women have all provided concrete grounds for gender equality. For instance, the Beijing Platform for Action clearly stated that:

"Equality between women and men is a matter of human rights and a condition for social justice and is also a necessary and fundamental prerequisite for equality, development and peace."

Almost in parallel to these broader global initiatives, in the development context it has long been realised that investing in women's education is crucial for development, economic growth and elimination of the persistent gaps between men and women. From the 1950s until 1976, when the first UN Women's Conference was held, government development policies focused on general on 'human development' through increased well-being and welfare, with education and health used as entry points for providing equal opportunities. The point of departure for greater emphasis on gender equality occurred in Asia, as in the other parts of the world, during the international Women's Decade, as a result of more thorough research and analysis.

Despite global declarations, in many countries both 'gender' and 'energy' integrated development initiatives have been rather slow to appear. The linkages discussed in various forums have not been strongly incorporated into mainstream development activities. This is primarily due to the lack of institutional and policy mechanisms for integrating multi-sectoral concerns and involving multi-stakeholders in energy decision-making processes. The state-driven top-down approach has been less than favourable for promoting renewable energy options or decentralised energy initiatives, or for creating wider opportunities for women to contribute to energy decisions. In addition, the fragmentation of responsibilities and tasks between conventionally compartmentalised institutions has resulted in the treatment of both energy and gender as orphans.

The broadening of energy policy perspectives

Past experiences and on-the-ground realities related to gender and energy have important implications with regard to the ways in which the Millennium Development Goals could be realised. Policy makers have now generally recognised the catalysing role of energy for achieving sustainable development. They have also begun to realise that considering energy in correlation with gender, as a cross-cutting social parameter, has the potential to shift the focus of energy planning towards a broader understanding of the social context of development needs. A number of changes have occurred in energy policies along these lines.

1. A broadening of ideology and perspectives on 'energy', which has previously been associated primarily with 'technology', 'commodity' and 'supply'.

2. A 'social' perspective on energy as a carrier of services needed for implementing sustainable development, particularly the Millennium Development Goals.

3. Enhanced interest in promoting decentralised, renewable energy sources and technologies to address the issues of energy insecurity and unmet energy needs.

4. Adoption of an integrated approach by which gender considerations can be built into energy policies, programmes and projects.

5. Integration of end-users' perspectives on modern energy technology and end-use devices, to provide greater benefits.

Gender and Energy issues

It is rather difficult to generalise the situation pertaining to gender and energy in Asia. The issues include broad social and economic development concerns, and are also directly and indirectly connected with rights, justice and equality. Some common factors can be identified, however, within the region.

■ **A persistent gap between men and women in the social system.** Inequalities between men and women have influenced their opportunities to define, formulate and implement policies, programmes and projects, very significantly impeding women's citizenship rights and ability to act equally.

■ **Poverty, and a lack of capital and financial services for the poor and women.** Access to modern energy carriers, the services that they deliver, and the securing of end-use devices is constrained by the social, economic and environmental conditions that they have to deal with.

■ **Lack of gender inclusiveness in policy instruments in the energy sector.** The political, economic and technological opportunities for promoting gender-conscious energy development have been limited due to lack of appropriate policy instruments and political commitments, and the lengthy procedures needed for awareness and training.

■ **The exclusion of traditional technologies from the major energy paradigm.** Traditional technologies, infrastructure, labour, and materials are primary energy sources in many countries, but continue to be treated as unvalued goods and services. The biomass resources that are widely used by women in the region do not carry a price tag. For traditional biomass technologies, capital investments are low and not structured into national energy economics. Women's labour in the energy supply system is unpaid and part-time, and is not considered as an occupation. Collection of biomass using women's labour is in the 'informal' system, so there is a tendency to continue using a women-exclusive energy paradigm in many countries.

■ **Lack of recognition of the economic value of women's energy-related services.** Because women's labour is unpaid and in the informal energy sector, it is not included in national accounting systems. The personal, social and economic costs of the energy activities performed, and losses borne by women due to the detrimental effects of their work, are often unacknowledged.

■ **An outstanding gap in the availability of energy services to women.** This is a critical issue for sustainable development considering women's contributions to providing useful energy and multiple services related to food, nutrition, health, care and welfare. The technological limitations in the supply chain, conversion and accessible end-use devices create serious detrimental effects on women individually, affecting children, families, communities, and informal economics of the region.

■ **Correlation between reliance on traditional biomass energy and gender inequality.** The countries heavily dependent upon biomass energy for cooking and domestic use are the ones that have not been able to assure gender equality and equal opportunities for women. As a result, progress in human development has been rather slow and marked with persistent gender gaps.

■ **Disparities in the roles of men and women in energy systems.** In many countries, the traditional energy chain that delivers crucial services is based on women's unpaid labour in biomass collection, extraction, processing and carrying raw material in bulk. In contrast, the modern energy supply chain is primarily run by men, with significant value assigned to their labour, knowledge, capital, technology, and profits.

■ **Inadequate investments in modern biomass energy technology.** The most crucial renewable and sustainable energy source for the developing countries, especially in the domestic sector, suffers from lack of modern energy technology, improved end-use devices and investments in technology promotion and extension services.

Although it is difficult to synthesise all the past achievements, some crucial measures have been made in Asia dealing with gender and energy. (See Table 3.)

Strategies and Approaches

Many strategies and approaches have created some enabling conditions, if not a transitional move, towards integrating gender and energy into the development paradigm. The process in Asia has been influenced by several factors. The first is research on 'gender and energy' which has covered a wide range of energy systems, and inquired into gender and development implications (Wickramasinghe, 2005). The second factor is the influence of international initiatives that have continued over several decades, exploring gender-related initiatives and their consequences on development. The third factor is the women's rights movement, which has challenged inequalities, injustice and deprivations. The fourth was the

Millennium Declaration in 2000, in which governments agreed to promote gender equality and the empowerment of women. Energy has been accepted as a prerequisite for achievement of all the MDGs, while promoting gender equality and empowerment of women is seen as an effective way to combat poverty, hunger, disease and stimulate development that is truly sustainable.

Two major approaches have been adopted for promoting gender-sensitive energy policies, programmes and projects. *These include:*

- Empowerment of women economically and politically to make their own energy choices; and
- Gender mainstreaming to promote a more gender-sensitive energy supply system responsive to development concerns on the demand side.

These two approaches have been used in a mutually-reinforcing manner – empowerment helps ensure a wide range of choices for women and allows them to get more involved in making decisions on energy, including technology preferences to satisfy their needs.

Mainstreaming gender in energy activities has provided windows of opportunity enabling women to gain greater access to modern energy and services to meet their development needs and affirm their equality. The conceptual framework for this has been strengthened through the initiatives of the UN Economic and Social Council, UNESCAP, UNDP, IFAD, UNIFEM and ENERGIA. In addition, the potential contribution of energy for realizing the MDGs has been widely examined from gender perspectives, engendering strategic solutions. In this regard two strategies have made a progressive change in the region.

■ The first is the integration of energy and rural development policies and programmes, with support for country level action given by UNESCAP.

■ The second is the embedding of a gender and energy approach into integrated project planning within the initiatives of UNDP.

These two strategies have been often combined at the national level, where UNESCAP has helped in the preparation of national strategies with an integrated process, including gender mainstreaming, while UNDP has helped with project planning process. Within the UNESCAP framework, national strategies have been prepared by national teams from Cambodia, Bangladesh, Lao PDR, Myanmar, Nepal, Sri Lanka and Vietnam working on integrated energy and rural plans. These efforts have introduced practical actions where gender has been integrated into mainstream development.

In many countries, an integrated village development approach which includes energy has made significant changes in the lives of women. The need for providing a wide range of energy options for satisfying women's energy needs has been well-demonstrated. The energy types used in generating energy services are rather diverse; access, affordability as well as the economic feasibility and efficiency have been identified as key concerns influencing energy choices.

TABLE 3

Some regional initiatives

Issue	Measures/strategies used experiences	Agency and activities
<i>Lack of integrated approach</i>	Integration of energy with gender mainstreaming into rural development policies, programmes and projects. Integration of wood energy into non-forest production systems	UNESCAP - Training, awareness raising, guidelines, capacity building at national level, extended support for national level training and developing national strategies. RWEDP of FAO - Training, awareness raising, dissemination of information, country level consultation.
<i>Lack of awareness and capacity</i>	Gender integrated energy planning	ENERGIA, SIDA, RWEDP of FAO - Training of trainers/national experts, training, and dissemination of materials. UNESCAP, UNDP
<i>Lack of success cases/stories</i>	Dissemination of knowledge and experience	UNDP, World Bank.
<i>Lack of awareness and extension on improved energy technology</i>	Promotion and dissemination of improved cookstoves	ARECOP and its regional network
<i>Lack of investments on modern energy technology</i>	Development of modern biomass energy technology	GEF – support programme for technology development.
<i>Lack of awareness on cost of primary energy supply/value of utility.</i>	Dissemination of knowledge, technical packages.	RWEDP of FAO Training and awareness raising in member countries.
<i>Repercussions of traditional energy generation and end use technology on women and their health</i>	Dissemination of research	RWEDP of FAO Consultation, research.
<i>Lack of mechanisms to share experience and build solidarity</i>	Networking, capacity building and dissemination of knowledge	ENERGIA Training, capacity of national organisations, sharing experiences

Recommendations

- Promote a modern energy system that provides services for the poor and women and disadvantaged groups, for effective implementation of development projects and programmes, and also for reaching the MDG targets.
- Formulate national strategies that specifically address gender issues and the social context in which energy is used, with clearly defined gender and energy targets and time frames related to promoting the implementation of MDGs, enhancing productive activities and improving health, education, knowledge, and skills.
- Broaden the energy sector to include cooking energy as a priority rather than a peripheral matter, recognising its central importance. There should be less emphasis on providing electricity for illumination alone, and greater focus on providing the multiple types of energy services needed for realising the MDGs.
- Use energy services to reduce the literacy gap and improve educational enrolment rates of boys and girls, and expand access to information and communications technologies with clearly specified targets for improving functional literacy.
- Promote entrepreneurship development and expand the use of energy for production, considering the central importance of poverty alleviation and increasing the share of earned income of women in the region. Use financing and credit facilities, and subsidies, to remove obstacles faced by women.
- Involve women and women's organisations in technology design and the efficient and effective implementation and scaling up of projects and programmes, and as stakeholders in decision-making to ensure equality and help address the difficulties faced by women individually and collectively.

- Consider options for introducing renewable energy technologies at affordable rates for various end uses, including domestic cooking and productive enterprises.
- Build women's capacity and authority to manage biomass energy more efficiently through investments in modern energy technology. Favourable policy measures affirming their rights to land and sources of biomass production are prerequisites for this.

References/Readings

Dara, M, 2000. Country report and health implications of wood fuel use for women and children, A Paper presented at the workshop on Gender Issues in Wood Energy, 21-22 November, Asian Institute of Technology (AIT), Thailand.

ESMAP, 2005. Advancing Bioenergy for Sustainable Development: Guideline for Policymakers and Investors, Volumes I, II and III, Energy Sector Management Programme, Energy and Water Department, The World Bank

Heruela, C, 2000. Trends in Woodfuels Use in RWEDP Member Countries, Wood Energy, Climate and Health International Expert Consultation, Regional Wood Energy Development Programme (RWEDP-FAO), Field Document No. 58

Pandey, M.R., 1998. Health risk caused by domestic smoke, Boiling Point, ITDG, No. 40

Pandey, M, 2000. Health impacts of woodfuel emission and how to improve them, Wood Energy, Climate and Health, International Expert Consultation, Field Document No. 58, FAO-RWEDP, Bangkok, Thailand

Parikh, J, K. Smith, and V. Laxmi, 1999. Indoor air pollution: A reflection on gender bias, Economic and Political Weekly, February 27

Parikh, J, 2000. Rural energy and health impacts, IGIDR Project Report, No. 048, Indira Gandhi Institute of Development Research,

UNDP, 2004. Energy for Sustainable Development in Asia and the Pacific Region: Challenges and Lessons from UNDP Projects

World Bank, 2004. Global Monitoring Report 2004: Policies and actions for achieving the Millennium Development Goals and Related Outcomes

Wickramasinghe, A, 2004. Implications of Biomass Energy Systems for Women in Sri Lanka, Glow, A Publication of the Asia Regional Cookstove Programme, Vol. 34

Wickramasinghe, A, 2005. Annotated Bibliography: Gender and Energy in Asia, Publication of ENERGIA, the Netherlands and NANEGE, the National Network on Gender and Energy, Sri Lanka



“If women can retain their energy roles using technology through which biomass feedstock can be transformed to modern energy carriers with commercial opportunities, this would be a win-win situation.”



The Relationship Between Gender, Energy and Development in Latin America and the Caribbean

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This regional report is intended to help create greater awareness among national governments and the international community at CSD 14 and 15 concerning the importance of gender issues in energy planning and policies. It is hoped it will lead to new concrete commitments and actions on mainstreaming gender considerations into energy decision-making.

During the CSD Regional Implementation Meeting for Latin America and the Caribbean, the representatives of Women as a Major Group had some success in conveying to government delegates the importance of introducing a gender perspective. However, the promotion of women's participation in decision-making processes related to energy still requires a lot of work. With enhanced participation, a more profound understanding of the different conditions in which men and women find themselves will be gained.

By strengthening activities which incorporate a gender perspective into national and regional institutions and into the formulation and implementation of energy projects and programmes, the integration of gender and energy policies can be realised, in this way stimulating sustainable development in Latin America and the Caribbean and promoting a culture based on equity and diversity principles.

It is important to develop and implement specific indicators to evaluate the impacts of energy policies and projects in terms of their satisfaction of people's basic needs and strategic interests, and to verify qualitative and quantitative changes in the relationships between men and women. In addition, documenting lessons learned during the implementation of energy projects as part of a systematised process will show the actions and programmes taking place at the national and the local level in the Latin American countries.

Background

In Latin America, as in most of the developing countries, improvements in access to energy services are essential for sustainable development. The sustainability of energy systems is related to economic indicators, equitable access to energy services and the environmental impacts of energy use and exploitation. In many Latin American countries, the implementation of open markets and policies related to rural access to electricity have caused significant transformations in the energy sector. Latin American developing countries are facing the problem of having to compete in a global market, while the amount of energy consumed per capita, and its productivity, is relatively low. The condition of Latin American women is doubly difficult: they experience greater exploitation than the men because their unpaid labour is used to nurture the national economies. The "invisible" work that women perform every day provides indispensable energy inputs for the survival of their families and households, and because of that, for the economies of their countries.

There has been little concern about the impacts of the transition in the energy sector on rural and urban women. Savings of labour time in women's domestic work has received little attention, since this unpaid expenditure of human energy is not registered in national accounts. Nor are women's earnings in the 'informal' sector.

Energy needs have grown, in terms of production and consumption levels, simultaneously with increases in population and technological development. At the global level, there is a

demonstrated relationship between energy use and economic development indexes. But this does not mean that there is a fair distribution of the opportunities and benefits from economic growth due to the use of energy technology for production purposes. Many people do not have access to energy in the quantity and form they need to satisfy their basic household and productivity needs, and so remain in poverty. Problems with access to energy are greatest in the rural areas where electrical power is insufficient. Governments face big challenges addressing issues of fairness and access among urban and rural populations, as well as high rates of population growth, and clear energy policies are needed with a vision of urban and rural sustainable development.

Widespread dependence on traditional biomass fuels is likely to continue in many of the developing countries. At the regional level, firewood continues to be the most common form of energy for cooking, and sustainability of its use is fundamental for environmental and social reasons. There is a need for sustainable management of firewood use, as well as reduction of its environmental impacts and the adverse conditions affecting rural women who use it.

In both urban and rural areas, women are engaged primarily in informal economic activities and domestic and reproductive tasks for the family and the household – preparing and processing the food supply, taking care of the children and older and sick people, and cleaning. Though unremunerated, these activities provide significant benefits to those working in the formal employment sector.

Women's own income producing activities are generally informal and coordinated with their multiple household responsibilities. Even in regular jobs, women generally do not receive the same economic compensation as men do for the same effort, and women suffer more from increases in unemployment, since traditionally their access, permanency and promotion in the formal employment sector has been limited.

Thus women, in spite of their active participation and strong contribution to the economy, are always the poorest because of their disadvantageous position in relation to the men. It is important to emphasise that this condition of women is not 'natural', but the result of historical and cultural factors that have determined the roles of women.

Key Energy and Gender Issues Identified

For Latin American women in particular, the lack of valuation and remuneration for their work keeps them in poverty and marginal conditions, with little political participation and input into decision-making processes. In addition, lack of access to credit, services and technology limits their participation in the development process in general. The legal and judicial frameworks in these countries still do not offer real support to women, regardless of ethnic, or class distinctions.

It is important to emphasise that the energy consumption and productivity statistics of a country do not reveal the exclusion of women. Energy decision makers commonly assume that increased energy consumption automatically increases everyone's quality of life, and therefore emphasise energy projects and programmes on a great scale, without taking into account the energy needs of the poor majorities, or the different roles and responsibilities of men and women.

Domestic energy is one of the most important sectors in Latin American countries, and it is primarily women who are responsible for supplying biomass fuels like firewood and crop residues. Given the environmental and social impacts of biomass use, it is important to take steps to reduce these impacts – conserving the soils of the region, maintaining a healthy atmosphere, and obtaining better time use.

The experience of women in the Latin American region is characterised by three fundamental elements:

- Conditions of life which, in general, are among the worst in Latin America, so we can speak of a "feminisation of poverty".
- A remarkable difference in economic, social and political participation of men and women, with restricted citizenship rights for the women.
- A historically created socio-cultural situation characterized by discrimination against women in social practices and in the legislation of each country.

The poverty of women means, among other things, limited access to energy resources and options. Contrary to what is usually expressed when one speaks of the energy consumption of rural homes, the biggest energy source is not firewood and biomass, but the invisible unpaid time and work of the women, cooking and preparing food, gathering the firewood, and transporting water. Poverty in the Latin American countries is not only reflected in lack of access to basic services such as

water and electricity, and education, but also in limitations on physical and mental development.

In general, since energy policies have been considered to be gender-neutral, there are not specific rules in the Latin American region that make these relationships explicit. Inequality of opportunities for women is related to historical conditions, and the effective participation of women therefore requires not neutral discourse, but a vision that integrates the specific needs of women, based on their own definitions.

For this reason, the impacts of the energy policies and strategies in Latin America need to be differentiated by gender, considering the practical and strategic energy needs of men and women so that they can be taken in account. To obtain gender equity for men and women in access to energy resources, a variety of related actions are needed, guided by a national strategy to eliminate the factors responsible for the inequities.

A gender perspective does not just refer to the incorporation of women in development projects, but also to the necessity of creating new concepts, methodologies and instruments that contribute to changing the existing structures of inequality among men and women, and the current unsustainable use of the environment.

- Involving men and women in influential roles at all levels can accelerate the achievement of sustainability in the management of energy resources.
- Sustainable management of energy resources can contribute significantly to improving gender equity, because it increases the access of both women and men to energy resources services to meet their basic needs.

By means of better energy access and use, women can better satisfy their personal needs and collective interests. Through improvements in time use, women can also improve their education level and pursue employment and productive activities to increase their incomes and contribute to the economies of their homes.

Development initiatives that include women as protagonists can improve the efficiency and effectiveness of the promoted actions. Effective participation of women in all the decision-making spaces, from the local ambit to the international one, can be achieved through mechanisms like education, training, empowerment and financial assistance. Integration of gender perspectives into energy policies offers an opportunity for a new and responsible focus in policy development. An important role to be carried out on the part of the non-governmental organisation will be to support the participation and empowerment of sectors traditionally excluded from policy formulation processes.

Another essential aspect of considering energy resources from a gender perspective involves recognition of the management roles that women in the rural area have developed with regard to the natural environment. Women have valuable experience in managing energy resources and it is important to promote the use of this experience in energy projects, with the objective of building a more sustainable environment for the whole community. In this way a more equal distribution of benefits and services among the different groups of

interest can also be assured, reducing the competition and the conflicts related to the energy resources. To recognise the contribution of women in the administration of energy resources and to economically value this contribution, it is necessary to use gender-sensitive concepts, methodologies and instruments.

In energy projects with a gender perspective, it is necessary to evaluate the long-term impacts generated in satisfaction of basic needs (such as drinkable water, domestic electrification, improved wood-burning stoves, corn mills, health centers with refrigeration, telecommunications, community illumination), as well as strategic gender interests (such as energy for education, increased political participation, participation in decision-making processes, and productive uses in small and medium enterprises).

It is important to ensure the equal engagement of men and women in organisational, technical, productive and administrative project activities, with the objective of verifying the qualitative and quantitative changes in relationships between men and women.

Gender indicators can:

- **Make the invisible, visible.** Indicators allow us to recognise, for example, the time women dedicate to gathering firewood in areas of scarce energy sources, instead of dedicating their time to education, or to income-generating activities.

- **Monitor advances made.** The results obtained by applying the same indicators at different moments allow us to evaluate whether the situation and the quality of life of the men and women participating in an energy project have improved or worsened.

- **Measure the overall impact of projects.** Indicators allow us to evaluate if the implemented policies, programmes or specific projects achieve gender-sensitive targets.

The inclusion of a gender perspective in the design and implementation of energy initiatives is a relatively recent phenomenon. However, when programmes or projects recognise the differences between men and women inside families, interest groups and communities, important benefits have been obtained (IUCN, and UNDP):

- The decisions that have recognised the gender differences in the energy sector have visualised and taken into account more diverse perspectives and needs.
- When energy has been related to social topics, like poverty, health, security and empowerment, the projects have been more successful.
- When household energy programmes have been focused on women, their energy consumption has been directly or indirectly diminished. Alternative energy programmes have proven to be more effective since women are more involved in these types of decisions.
- The nutrition of the family has been improved by alternative energy technologies.
- Most women consider the time and effort reduction in domestic and reproductive tasks one of the most impor-

tant results from access to alternative and sustainable energy resources.

- It is important to recognise in the Latin American countries the number of homes under conditions of poverty that have female leadership. The promotion and the participation of these women in the planning and decision-making processes on energy resources has had a significant impact on poverty reduction.
- Illumination is one of the most important benefits for women, since it contributes to security, convenience and recreation possibilities at night.
- The electrification process increases the value of land and other communal properties.
- Health impacts are important for women and children when energy improvements reduce the quantity of smoke and other polluting agents inside the home.
- Foods can be conserved longer in homes that have cooling systems.
- The use of alternative technologies for energy production, like small hydroelectric plants, solar systems and wind mills, are viable solutions for isolated areas. Involving women in these projects has been shown to be successful in many of the initiatives that have introduced these new types of technologies.
- The education programmes linked to energy which have been focused on women have had more impact on future conservation and responsible energy consumption, since women are responsible for educating the children.
- Information differentiated by sex allows more effective supervising and evaluating of the negative and positive impacts of projects.

Recommendations for Regional, National and International Actions:

Recommendations for policy formulation

- Motivate decision-makers in the energy sector to understand the importance of gender in national politics.
- Develop an energy policy which includes a vision of sustainable development. This policy should not just be dedicated to an increase in electrical coverage, but should also include topics like providing for basic needs, social services and appropriate access, which allows for explicit gender perspectives.
- Incorporate the topic of rural energy development into national politics, including domestic energy, income generation and biomass management at the rural level.
- Strengthen activities which include a gender perspective in national and regional institutions. The promotion of gender action networks can be an important approach at different levels, like ministries and NGO's.

Recommendations for programme and project formulation

- Incorporate a gender perspective in the different formulation and implementation levels of energy projects, using existing methodologies.
- Strengthen the development of case studies to be able to

disseminate experiences and lessons learned from energy and development programmes and projects in the region.

- Propose, develop and use relevant indicators which include a gender perspective, in this way supporting valuation of the relationship between energy and gender.
- Promote alliances between programmes and projects which have a social impact, a gender perspective and energy components, in this way integrating a wider social intervention dynamic, which can strengthen work with women's groups on their different roles and energy needs.
- Develop and implement supervision and evaluation systems that integrate a gender perspective.

Recommendations for training and institutional mainstreaming

- Evaluate organisations and institutions from a gender perspective at all levels, from their responsibilities to their development impact.
- Strengthen critical institutional capacities to implement institutional programmes with gender perspectives.
- Promote the development of training programmes in gender and energy which respond to the realities of the region. Consider the promotion of institutional exchanges which contribute to sharing experiences in the Latin American countries.
- Support training programmes for women in alternative technologies.

Recommendations for information and participation processes

- Complete the identification and evaluation process regarding gender barriers.
- Promote the participation of women in the energy sector at all levels.
- Undertake organisational and institutional studies, including systematisation of information and the creation of statistical data and indicators that consider the gender situation in the institutions, as well as those that indicate the general trends in energy use, management and demand.
- Promote equal access of men and women to alternative technologies to reduce contamination of air in the home.
- Support access by men and women to information on clean energy technologies and the efficient use of the energy.
- Promote equal access to information on alternative energy markets.

Conclusion

The energy situation in Latin America presents very important challenges to energy decision-makers. The dilemmas posed by market transformations in societies with structural access problems will be a sustainability topic that will have to be analysed and discussed in coming years.

To improve the development conditions related to energy and sustainability, a new debate will be needed on topics like investment attraction, management of the social effects of energy use, stimulation of energy access, and environmental effects.

At the regional level, it is important to address the topic of rural energy in isolated communities that won't be covered by current energy markets. This equity topic is fundamental and will need to be approached from a multidimensional perspective of equity and development.

The integration of gender perspectives into emergent energy policies offers an opportunity toward a new and responsible focus in the development of policies, and therefore it is important to realise its integration within the short run.

References/Readings

United Nations Development Programme
www.undp.org/regions/latinamerica/

IUCN (The World Conservation Union) Central America
www.iucn.org/en/projects/camerica_pa.htm

Fundación Solar
www.fundacionsolar.org.gt

Energy and Gender in the Pacific

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This paper provides information on energy and gender issues in the Pacific region and outlines ongoing implementation activities and initiatives. Further, the paper highlights constraints, lessons and challenges concerning energy and gender linkages, with the expectation that this material will be taken into account in the discussions during CSD 14 and in the recommendations made at CSD 15.

Preparation of the paper was coordinated by the Pacific Energy and Gender Network (PEG), hosted by the South Pacific Applied Geoscience Commission (SOPAC), with support from ENERGIA and the Technical Centre for Agricultural and Rural Co-Operation (CTA). The paper was endorsed by member countries at the Regional Strategic Planning Awareness Raising Workshop – Pacific Energy and Gender Network, 5-9 December, 2005, held in Nadi, Fiji Islands. This paper was also incorporated into the Regional Pacific Energy Submission paper to CSD 14, which was coordinated by the Council of Regional Organisations of the Pacific (CROP) – Energy Working Group.

Some key points include the following:

- Energy is a fundamental input to most economic and social activities and a prerequisite for development in other sectors, such as education, health, and communications. The Pacific region faces special constraints due to the small size and isolation of its island states, limitations on transportation and market access, lack of indigenous energy resources, and environmental vulnerability.
- Women and youth are important stakeholders in the energy sector and their participation is vital to achieve sustainable development, but they are poorly represented in energy policy, planning and development. Empowerment through capacity building and technical training is needed to increase their capacity to participate effectively in energy policy-making, energy projects, programmes and decision-making bodies, including training in energy technologies.
- National governments need to take practical initiatives in seeking alternative energy sources, and also considering the gender issues associated with different energy technologies. Mainstreaming gender into national energy policies to facilitate sustainable development will require gender awareness training for government officials, energy officers, and other stakeholders, including at the community level.

Major Constraints and Challenges in the Region

Pacific island countries face a unique and challenging situation with respect to energy for sustainable development:

- Demographics vary widely between countries, but often feature small, isolated population centres.
- Market access is limited by lack of appropriate technologies to meet quarantine requirements of overseas markets.
- 70% of the region's population lacks access to electricity, though percentages within countries vary widely, from 10% to 100%.
- Pacific island countries comprise a wide range of ecosystems, predominantly influenced by marine systems, that make infrastructure development difficult and environmental impacts especially significant.
- Most Pacific island countries do not have indigenous petroleum resources but have a range of renewable energy resources that are generally under-utilised.
- Increasing oil prices, and Pacific island countries' heavy reliance on fossil fuel, raise energy security and environmental sustainability concerns for the region.

In addition to the above, the Pacific is one of the most politically vulnerable regions in the world, especially the Melanesian

group of islands. The frequent changes in governments as a result of coups d'état or votes of "no confidence" have led to instability in the region. As a consequence, scarce resources are being re-directed to priority programmes, such as the maintenance of law and order to promote political stability, depriving other important areas from receiving an equitable share of government funding, including the provision of reliable and affordable energy services and infrastructure to all the population.

Energy and Gender Issues in the Pacific

Since in every country access to energy is key to meeting both basic and development needs, there are clear linkages between energy and major socio-economic issues such as poverty, population growth, food security, health, environment, economic growth, national security – and gender disparities. In general, energy can contribute to widening opportunities and empowering people to exercise choices. On the other hand, its absence can constrain men, women and youths from contributing to, and participating in, socio-economic development.

The lack of documentation and analysis on energy and gender issues in the Pacific region poses a great challenge for decision-makers in the development of practical and appropriate strategies for achieving gender equity in energy pro-

grammes. Moreover, there is generally little support from governments for promoting and raising public awareness on any type of energy issues.

Basic household energy needs in the Pacific region are similar to those in other parts of the world; energy is needed for cooking, washing, drying, lighting, etc. Women's roles in society are closely associated with providing for these basic household energy needs. In the Pacific, women's responsibilities as managers of their homes often include gathering fuel wood, although in some Polynesian countries the men gather the wood because large logs are needed for cooking in an "umu" (earth oven).

Gathering fuel wood can be difficult in communities where the nearby trees and forest have been unsustainably harvested, as has happened in many Pacific island countries. This has exacerbated fuel wood shortages in many communities. The time taken to collect fuel wood can be quite significant as the distance travelled gets further and further away from the homes. In rural areas, cooking with fuel wood in open fires is still widely practiced, and women are subjected to the smoke and negative health effects often associated with open fire cooking. The availability of modern cooking fuels such as LPG is restricted to urban centres. The poor infrastructure development in rural areas inhibits access to LPG and other types of energy sources less polluting than open wood fires.

Access to electricity in Pacific islands varies from 100% in Niue to less than 20% in the Solomon Islands. In the Melanesian group of countries, which includes Fiji, Papua New Guinea, the Solomon Islands and Vanuatu, access to electricity is at the lower end of the scale. In all these countries, the majority of the population lives in rural areas. The lack of access to electricity in rural areas adds to the hardships faced by women and other disadvantaged groups in the communities. Many times women have to do their household chores with poor quality lighting, including improvised hurricane lamps. School children cannot easily study at home without proper lighting and, in this modern digital age, lack of electricity makes the gap between rural and urban school children even wider. Health services, too, are affected by the lack of electricity and many rural health clinics cannot provide basic health services due to lack of refrigeration units for vaccines.

A number of Pacific island countries are putting in place national rural electrification programmes to help speed up the provision of electricity to rural areas, but these national programmes are heavily subsidised and are generally not sustainable. Communities electrified with diesel generators face added problems in trying to get regular supplies of diesel fuel. Their remoteness, and the infrequent and irregular supply schedules for diesel fuel, make their electricity undependable.

There are some examples of successful renewable energy lighting projects in the Pacific. These projects have brought some relief to households in terms of access to good-quality lights. However, decisions about where the lights are located in the house usually rest with the men, and in many instances the kitchen is not a high priority for them.

In many Pacific island nations, squatter communities are sprouting up and spreading around the fringes of the main urban centres. These squatter communities are mainly com-

prised of families migrating from rural areas to cities in search of better opportunities. The squatter communities represent a new dimension in the problems of energy and gender in the Pacific. While these communities are within easy reach of the energy infrastructure serving urban centres, legislation put in place by governments and municipalities prohibits the provision of services, including energy services, to such communities. Therefore, though the people in these communities are considered urban dwellers, the energy services they depend on and the hardships women face are similar to those in the rural areas.

Ongoing Implementation Activities and Initiatives in Energy and Gender

Interest in gender concerns in this region can be traced back to the Pacific Platform for Action for the Advancement of Women, adopted in 1994 by the 22 governments and administrations served by the Secretariat of the Pacific Community (SPC), as part of the Noumea Declaration – in which the importance of women's participation in national and regional development activities was formally recognised. The Pacific Platform for Action was the Pacific contribution to the Beijing Global Platform for Action adopted in 1995.

In the global context, these activities are consistent with Principle 20 of the Rio Declaration and Chapter 24 of Agenda 21, which stress the vital role women play in the management of the environment and natural resources and call for the full participation of women in sustainable development programmes. In addition, the recent outcomes of the World Summit on Sustainable Development (WSSD) reinforce the importance of women's proactive roles and gender mainstreaming as mechanisms for poverty eradication.

The UN Millennium Declaration and the Millennium Development Goals define the overarching aspirations of contemporary sustainable development thinking, and make unequivocal reference to the need for a gender perspective in all development activities as a key element in promoting sustainability of the environment, societies and economies. Millennium Development Goal 3 specifically targets the promotion of gender equality and the empowerment of women. Although these gender-related targets are valuable in themselves, they are also central to achieving all the other Millennium Development Goals.

In the regional context, as a follow-up to the Economic and Social Commission for Asia and the Pacific (ESCAP) workshop, held in Perth, Western Australia, in June/July 2001 and the Regional Energy Meeting held in Rarotonga, Cook Islands in 2002, the South Pacific Applied Geoscience Commission (SOPAC) accepted the mandate to assist in coordinating initiatives related to the development and implementation of an action plan for women and energy.

Pacific Energy and Gender Network (PEG)

SOPAC convened the first regional workshop on "Gender, Energy and Sustainable Development" in Nadi, Fiji Islands from 4-8 August 2003.

Recommendations resulting from the workshop included:

- Mainstreaming gender into energy and policy planning
- Improving networking with relevant stakeholders

- at the national and regional level
- Strengthening information dissemination in order to increase awareness of energy and gender issues
- Providing technical assistance
- Improving gender and energy training
- Building capacity at different levels on (a) fund raising and (b) analysing gender impacts of the use of different energy sources and technical choices.

Among the identified actions, participants prioritised the establishment of a network through a coordinating “hub” and agreed that a body named “Pacific Energy and Gender Network” should be established and initially hosted by the SOPAC Secretariat.

After endorsing the establishment of the Pacific Energy and Gender Network (PEG), the participants at the workshop defined its mandate and scope as follows:

Agreed Recommendations on the Establishment of the Pacific Energy and Gender Network

- (i) That the region chooses to endorse and establish a regional gender and energy network, Pacific Energy and Gender Network (PEG).
- (ii) That the PEG Network be open for membership to all Pacific island countries, regional, national and community organisations, and other relevant stakeholders that have energy and gender interests in the region.
- (iii) That the PEG Network will become a strategic actor in the Pacific Islands Energy Policy (PIEP) and Pacific Islands Energy Strategic Action Plan (PIESAP) in order to further gender equity and mainstreaming for sustainable energy development in the region.
- (iv) That the PEG Network be formally established through a coordinating “hub” and initially hosted by SOPAC. (The 2005 workshop recommended that SOPAC continue to host PEG.)
- (v) That the “hub” or Secretariat for PEG Network exists as a separate function from the host organisation, with the option that the “hub” of the Network rotate throughout the region and be hosted by different organisations with suitable capacity.
- (vi) That the PEG Working Group established in 2003 continue to plan, oversee and be responsible for the operations of the PEG Network.
- (vii) That the PEG Network strengthen its linkages and collaboration with the international gender and energy network ENERGIA.
- (viii) That the PEG Network implement the PEG Strategic Action Plan (PEGSAP) in collaboration with regional, national and community organisations and other relevant stakeholders.

In the Regional Energy Meeting (REM 2004) held in Madang, Papua New Guinea from November 29-3 December 2004, the energy officials recommended as follows:

“We endorse the further development of the Pacific Energy and Gender Network Work Programme through national and regional initiatives.”

Pacific Energy and Gender Network’s Accomplishments and Ongoing Initiatives

PEG’s ongoing activities include incorporating energy/gender articles into the quarterly Pacific Energy Newsletter (PEN) and other regional/international newsletters, mainstreaming gender into regional/national energy policies, and building awareness on energy and gender linkages.

Through funding support from partners and donors (Technical Centre for Agricultural and Rural Co-operation and ENERGIA), a key project on building awareness on gender and energy issues in the Pacific region was initiated in 2004. The following were the outputs of the project distributed in the region:

- Posters and flyers in three languages (English, Fijian and Hindi)
- Radio programme developed for six Pacific Island Countries, in English and seven local languages (Fijian, Hindi, Kiribati, Samoan, Solomon Pidgin, Tuvaluan and Vanuatu Bislama). The radio spots developed focused on 3 themes – one spot was on energy efficient appliances and bulbs, another on solar energy and the third on gender. All three spots underlined the importance of energy and how it improves livelihoods in the community.
- Video programme (20 mins) “Linkages Between Energy and Gender In the Pacific” in English. It presents successful rural sustainable energy projects such as the Driti Community Solar Refrigeration project (Fiji Islands), Lakhan Family Biogas project (Fiji Islands), Atata Community Solar project (Kingdom of Tonga) and Palau Entrepreneur Laundromat experience. The video has already been launched on national television – Fiji TV on The Pacific Way programme. It is expected that more opportunities will be sought for this video to be played over other national television channels in the region.
- A PEG website has been developed: <http://www.sopac.org/About+PEG>
- An Online Contact database of personnel in the field of energy and gender for the Pacific region has been developed: <http://www.sopac.org/PEG+Database>
- A Pacific Energy and Gender Annotated Bibliography has been developed and published. This document summarises the most important materials on gender and energy referring to the Pacific region, whether written from within or outside the region.
- A electronic mailing list has been set up for the PEG network (<http://www.dgroups.org/groups/cta/PEG>) which provides online tools and services needed to support the activities of the network.

The Regional Strategic Planning and Awareness Raising Workshop – Pacific Energy and Gender Network (PEG), 5-9 December, 2005, Nadi, Fiji Islands, delivered the following outputs:

- Pacific Energy and Gender Network (PEG) Strategic Action Plan (PEGSAP) 2006-2008
- Regional paper to present at Commission of Sustainable Development (CSD 14/15) and at the World Summit of Rural Women 2006 in Africa
- Increased understanding and capacity in dealing with gender/poverty issues in the energy sector (ENERGIA training modules adapted to Pacific)
- PEG Terms of Reference
- Common Ground Ideas that are Achievable in the Period 2006-2008
- Published and disseminated workshop proceedings.

Recommendations

Given the situation in the Pacific, the following recommendations are presented for enhancing understanding of general energy issues, and specifically integrating energy and gender issues into overall energy planning, policies and decision-making processes at the national, regional and international level.

(a) National Initiatives

- Mainstream gender into national energy policies and planning, including through assistance in the implementation of existing policies at all levels of government.
- Use participatory methods to enhance and support data collection on gender and energy.
- Increase awareness of energy and gender issues, especially at the decision-making level.
- Put in place policies to encourage more women to opt for energy-related careers.

(b) Regional Initiatives

- Encourage regional NGOs to be actively involved in energy for sustainable development.
- Strengthen community-based networks developed by community people where the purpose is to support community electrification in the Pacific through advocacy, networking, training and implementation support.

- Provide assistance in developing financial mechanisms to support community-based energy projects, especially those targeting women.
- Support regional trainings and workshops with energy and gender and sustainable development themes.
- Support a regional programme of documentation and reporting on the gender aspects of regional energy programmes.

(c) International Initiatives

- International financial institutions should direct resources to regional and national institutions to build capacity and support appropriate technologies for energy resources that encourage gender participation and representation.
- International organisations such as the UN should recognise the special and unique situation faced by Pacific island countries and provide assistance and support in terms of funding and technical assistance to lift the profile of energy, and specifically energy and gender awareness, in the region.

Conclusion

Energy programmes are of low priority in national development plans of Pacific island countries, as is evident from the poor energy infrastructure and the absence of appropriate regulatory frameworks for energy sector developments in Pacific island countries. There is a need to raise awareness on general energy issues, and in particular on energy and gender issues, at all levels of decision-making – within the government and also at the community level. While it has been recognised that women are significant energy users, they are poorly represented in energy policy, planning, and development. Governments will have to allocate adequate resources to build the capacity in the region to be able to respond to the myriad of challenges facing the energy sector.

National Papers: Africa



A woman in Ghana participates in the SAWA-TOOL training of trainers programme called 'Towards Technological Empowerment, Technical Training Modules for Women'.

Credit: Everts/SAWA-TOOL Project, 2000

Gender and Energy in Botswana and the Links to the UN Commission on Sustainable Development

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This paper is intended to create awareness on gender and energy in Botswana and highlight the links between energy, gender and the MDGs. It is based on a national consultation workshop organised by Botswana Technology Centre (BOTEC) to solicit ideas on how to improve the status of women through increased access to energy technologies and services, and how Botswana can benefit from decisions made at the meetings of the UN Commission on Sustainable Development on sustainable energy issues.

In Botswana, fuel wood dominates the energy sector, and access to electricity is very low. The government has made a commitment to make energy sources accessible to all people in the country, and is promoting solar photovoltaic systems for rural electrification in areas where grid connection is not deemed to be cost effective.

Women are the principal fuel wood collectors; they also constitute a majority of the poor, and of heads of households. However, in 2006 BOTEC conducted a gender audit of government policies and programmes which revealed that national energy policy was formulated without the involvement of women as a major group. At least in the case of household energy supply policies, the government has now included a specific objective in its draft Policy Paper, "to facilitate gender equity". This is an indication that the government recognises the different energy needs of women and girls and therefore requires organisations to ensure that women will also benefit from initiatives, such the rural electrification programme. It must never be assumed, though, that women's basic energy need is electricity, since women in rural areas generally continue to collect fuel wood for cooking even when the house is connected to electricity.

Key recommendations:

- *Environmentally friendly energy technologies should be rigorously promoted in the rural and poor urban areas to address fuel wood shortages and enable women, who are mainly involved in the informal sector, to generate more income and meet the needs of their families, including caring for those infected with HIV.*
- *Women, as a major stakeholder group in rural energy consumption, should be represented and enabled to participate fully when programmes and policies are formulated. Policies on gender and energy should be put in place to ensure mainstreaming*

of gender issues at the Energy Affairs Division and other energy policy implementing organisations.

- *The Women's Affairs Department should be strengthened, and should work with the Energy Affairs Division and other institutions to develop gender and energy training courses and guidance on mainstreaming gender in the energy sector.*
- *More women professionals should be involved in energy policy planning.*

Background on Energy and Gender in Botswana

Fuel wood accounts for 43% of the final energy consumption in Botswana, while electricity accounts for only 11%. The degree to which fuel wood is used in rural areas for cooking and water heating is 78% and 83%, respectively, as compared to urban areas where it is about 17% and 32%, respectively. Access to electricity is low (31%) in rural areas. By 2004, a total of 238 out of 400 villages were electrified in the country. In view of the low rate of access to electricity, the government has intensified its rural electrification programme, using both grid-based and off-grid sources.

The country has abundant coal reserves and one of the best solar regimes in the world. But the coal is not fully exploited as it is mainly used for electricity production and copper/nickel smelting. The household sector has not used coal because of

lack of equipment and the problem of high ash content in the coal, which the government has planned to reduce by washing the coal. In efforts to encourage use of coal, the government has two main coal depots in the cities of Gaborone and Francistown, in addition to other small depots operated by coal dealers.

The Botswana Energy Master Plan (BEMP) and successive National Development Plans (NDPs) have in the past guided developments in the energy sector. Policy statements were articulated in the NDPs. Challenges facing Botswana's energy sector include the need to: increase access to modern energy services in rural areas; improve energy service delivery; improve affordability of energy services, especially to low income groups; reduce the risk of excessive imports of electricity; reduce vulnerability to supply disruptions of petroleum

products; mitigate increasing international oil prices; promote the use of locally available energy sources; and address sustainable development and environmental protection issues.

A policy paper has been developed in order to address the above challenges and provide direction for future developments in the sector. The policy paper has been submitted to Parliament for discussion and approval. The policy strives to facilitate the provision of energy services at least cost to the economy, as well as to improve service delivery to meet customer needs.

Despite the fact that women are the primary fuel wood collectors in Botswana, they are not represented when policy and programmes are formulated. "In order to make energy systems more supportive of sustainable development objectives, contributions from all stakeholders, as well as increased investments, will be needed" (United Nations, 2001). The inability of women to participate in decision-making processes which impact highly on their lives and those of their families is seen as a drawback to efforts by the government to provide energy services for all.

The gender audit of policies and programmes that was conducted in Botswana in 2006 revealed that the draft national energy policy was formulated without the involvement of women, who constitute the majority of users of household energy. There was also lack of participation by gender experts during the policy process. Since fewer than 5% of the professionals at the policy-making body, the Energy Affairs Division, are female, this makes it difficult for women's energy issues to be adequately articulated. Although the Policy Paper included some references to gender and women, the analysis of women's energy needs and problems was inadequate. Nevertheless, it is acknowledged that the inclusion of women and gender in the Policy Paper is a step towards appreciating their energy needs and the problems associated with fuels they use.

Key Energy Issues

Access to energy is crucial to economic and social development and the eradication of poverty. Improving accessibility of energy implies finding ways and means by which energy services can be delivered reliably, affordably and in an economically viable, socially acceptable and environmentally sound manner (United Nations, 2001).

Although the government has made a commitment to make energy sources accessible to all people in the country, there are constraints in some areas. A variety of energy sources are available in Botswana but there are certain areas where the market has not penetrated, especially with regard to petroleum products. The government would like to electrify all villages in Botswana, but in some remote rural areas it is deemed not to be cost effective to extend grid-based electrification services. In some cases, the government has still supported electrification for social reasons. In others, the government is waiting for more development to come to villages, populations to increase, and incomes to rise, which would indicate that people would be able to connect to electricity, before placing villages on the electrification list.

Solar-based rural electrification

Many people feel that using solar PV systems is just a temporary measure while one is waiting to be connected to grid electricity. However, in 2007 the government, in collaboration with UNDP, will roll out a countrywide solar-based rural electrification programme to reach at least 88 villages. The National Rural Photovoltaic Electrification Programme is a five year programme that will enable households in areas where there is no electricity grid to purchase solar systems at affordable prices. This programme is responsive to the CSD 9 recommendation to support electricity services based on decentralised energy technologies, particularly in isolated areas.

Other initiatives by the Botswana government include:

- Building awareness about petroleum products, in conjunction with the oil industry
- Including in the Policy Paper objectives to provide energy sources in an environmentally friendly manner
- Phasing out unleaded petrol by the end of 2005 and creating measures to reduce the sulphur content in diesel from 3000ppm to 500ppm
- Creating a rural electrification scheme to help consumers get connected
- Reviewing the Rural Electrification Act, and increasing the goal, which is currently to electrify 100 villages in 3 years
- Making efforts to develop energy efficient guidelines for all sectors of the economy
- Creating a regional energy planning database management system, which is supported by the Southern African Development Community (SADC)

With regard to gender, inclusion of a specific objective on gender equity in household energy supply in the draft Policy Paper is a significant recognition of the distinct energy needs of women and girls, given their current roles in supplying fuel wood for household consumption.

Gender Issues in Botswana

Botswana has made progress, albeit slowly, to include women in all facets of economic development. For instance, the proportion of women in the Cabinet and Parliament has risen from 9% and 18% respectively in 1994 to 11% and 29% by 2004 (BOTEC, 2006). However, the President, speaking at the Emang Basadi Conference on Electoral Reform, said women are to blame for their absence in decision-making positions, as they constitute the majority of all political parties, but support putting men into power (The Mirror, 2006). The President called upon the conference to come up with ideas on how to improve the representation of women in Parliament and councils. There are currently only four elected women in Botswana. Five out of seven women elected to Parliament have been appointed Ministers; one is Chief Whip of the ruling party and another is Deputy Speaker (The Mirror, 2006). Both the governor of the central bank and the attorney general are women, as are some of the high court judges. It must be noted that in the corporate world and in government there are more women in middle management compared to top management.

The slow progress in enabling women to hold top deci-

sion-making positions continues to keep women's needs, including their energy needs, inadequately addressed. It is tricky for men to articulate women's energy requirements, or create energy technologies and provide energy services to be used by women, without consultation with women or without having women involved in the policy formulation process. Programmes and policies which lack women's involvement are likely to misrepresent their needs.

Stereotypical attitudes have contributed to low progress by women in development-related issues, particularly in areas such as engineering. The low enrolment of female students in science subjects compared to their male counterparts is attributed to stereotypical attitudes; in many cases girls were socialised to believe engineering-related courses were for boys.

Gender mainstreaming is another issue that needs to be addressed. There is general awareness regarding the different roles of women and men in the country and men are slowly accepting that there are gender differences which must be considered when policies are formulated. The Women's Affairs Department has made some progress in mainstreaming gender in some sectors but this remains inadequate, and as a result women's development is lagging. The department is understaffed and is therefore unable to mainstream gender in all the sectors as a matter of urgency. This is particularly the case in the energy sector where many women are affected negatively by policies due to lack of capacity by policy-makers to appreciate the impact of energy services on the different household demand groups, i.e. men and women.

The education sector is an example of good practice as it has started to mainstream gender in its policies. For example, 'The Automotive Trades Technical College ... has already put in place measures to attract female students and ensure gender balance' (Guardian, 2006). The Ministries of Education and Agriculture have established gender focal points, and the Ministry of Agriculture is currently working on a gender and agriculture policy.

In 2006, the National Assembly approved the bill 'to abolish the common law rule in terms of which a husband acquires the marital power over the person and property of his wife'. The common law rule granted a husband powers as head of the family by giving him the decisive say in all matters concerning the common life of the spouses. The husband also had power over the wife, including representing her in legal proceedings, and administering the joint estate.

A breakthrough has recently been made in the Botswana Defence Force (BDF), which will start recruiting the first women cadre into the army by March 2007. "This will end 30 years of the BDF as a prestigious men's club" (Daily News, 2006). This is a great accomplishment by the government, as well as a potential benefit for many women in the country. The decision will raise women's economic position, as many of them will become employed by joining the BDF and thus become financially independent. Being an employee of the BDF comes with such benefits as favourably priced housing and utilities. This resolution is also a boost to women's campaign to be recognised as the male's equals, in terms of mental and physical strength.

In the field of energy, the gender audit exercise report calls

policy maker's attention to the different impacts energy policies may have on men and women. This requires that gender analysis of programmes be carried out at the early stages to ensure that there are no negative impacts on either men or women.

Although women are the managers and users of household fuels it has been established that in many cases they do not make decisions on acquisition of the fuels. An analysis of data from a rural energy study showed that women in male-headed households did not control funds with which to purchase fuels or energy technologies. However, "... female decision makers are more inclined to choose modern energy" (Ditlhale and Wright, 2003), since modern energy such as improved fuels and energy technologies are likely to reduce the time needed to collect fuel wood and thus give women time to rest or become involved in income generating activities.

Recommendations for National Level Actions

The following recommendations are made to address the slow progress regarding the inclusion of women in energy provision decisions and activities.

A. Active Participation of Women

Women, particularly in the rural areas, are the major users of household energy; they use fuel wood for cooking, space heating and boiling water, and candles or paraffin and electricity for lighting. Fuel wood consumption in Botswana households is over 60% compared to other fuels. The bulk of the fuel wood is collected and used by women and girls in rural and poor urban areas. It is therefore recommended that in order to improve women's lives and make energy services accessible to all, the women, who are a major stakeholder group in rural energy consumption, should be enabled to participate fully when programmes and policies are formulated.

The distinct energy needs of women, especially in these times of high HIV/AIDS prevalence, call for special attention to energy fuels provided to households. In many cases women in Botswana are the caregivers to those infected with HIV/AIDS, a situation that has special needs for energy for sterilization of utensils and cooking meals for the sick before they are given medication. It is recommended that affordable energy fuels be provided to rural households as this would contribute to achieving the Millennium Development Goal (MDG) 6 'Combat HIV/AIDS, Malaria and other Diseases'.

B. Gender Equity in Energy Planning, Policies and Decision Making

The majority of households are headed by females and it is known that women currently constitute a majority of the poor, in Botswana and in the world at large. To enable women to become financially independent it is recommended that energy services reach out to more households. This would assist women who are mainly involved in the informal sector to generate income for their families. Provision of energy in this case would address MDG 1 'Eradicate Extreme Poverty and Hunger'.

More women professionals should be involved in energy policy planning. The energy Deputy Director and Director

positions are occupied by males, and the Minister and Permanent Secretary in the Ministry of Minerals, Energy and Water Affairs, which houses the Energy Affairs Department, are both male. This set-up generally makes it difficult for women's energy problems and needs to be articulated and addressed.

Improved energy technologies which are environmentally friendly, such as the gel stove, should be rigorously promoted in the rural and poor urban areas in order to address shortages of fuel wood. This would address MDG 4 'Reduce Child Mortality'. Some diseases can be avoided by boiling water, and the scarcity of fuel wood in some parts of Botswana has a negative effect on health. Improved stoves would also contribute to the reduction of respiratory illness caused by indoor air pollution due to burning smoky fuel to cook or boil water.

Finally, immediate action is required to mainstream gender at the Energy Affairs Division and other energy policy implementing organisations such as the utility, Botswana Power Corporation, which is responsible for the Rural Electrification Programme, and the Botswana Technology Centre, and Rural Industries and Innovation Centre, which develop renewable energy projects. It is only after these organisations have been made aware of the importance of gender differences, and the differing impacts of policies and programmes on women and men, that they can begin to develop programmes that equally benefit women and men.

Mainstreaming gender at the above organisations would also include the involvement of women in decision making. It is assumed that this would contribute to achieving objectives of MDG 3 'Promote Gender Equality and Empower Women', as the women in these organisations would ensure that women's energy requirements are properly articulated. This action would have a trickle down effect to women in households as policies and programmes begin to also favour them.

The Botswana Government must, however, be commended on efforts and preparations to '... address cross-cutting issues such as poverty eradication, health and sustainable development, gender equality, education and loss of livelihood. These are critical issues which are at the core of our efforts to improve the living standards of our people'. (Honourable Minister, Kitso Mokaila at the CSD 14 in New York). Gender equality in the energy sector would go a long way in addressing women's energy needs in the country, as well as in contributing to the achievement of the MDGs.

Conclusion

Gender mainstreaming in the Botswana energy sector is long overdue. The lack of capacity by policy-makers and project developers in the sector to carry out gender mainstreaming has contributed to the unintended negative impacts that ener-

gy policies and programmes have had on women. Women in rural households are not benefiting from energy initiatives as much as they should because a focus on electrification does not address their primary energy requirement – fuels for cooking. Electricity is expensive for cooking, and even if the households are connected to the grid women often continue to collect and use fuel wood to cook and boil water for their families. Because lack of participation in the policy formulation process by women as a major stakeholder group has led to inadequate articulation of their energy needs, it is recommended that gender be mainstreamed at EAD, BPC, BOTEC and RIIC as a matter of urgency to enable the policy makers and project developers in these organisations to take gender differences and requirements of men and women into consideration when developing programmes, and during their implementation.

References/Readings

Botswana Guardian, 2006. 'Ensuring gender balance in technical education'. June 30 article

Botswana Technology Centre, 2006. Gender Audit of Energy Policies and Programmes: The Case Study of Botswana

Daily News, 2006. 'BDF recruits women'. Article by A. Mokotedi, November 1, Gaborone

Dithale, N. and M. Wright, 2003. The Importance of Gender in Energy Decision Making: The Case of Rural Botswana. Journal of Energy in Southern Africa, Volume 14 No. 2 May 2003. Published by Energy Research Institute, Capetown

ENERGIA, 2006. Mainstreaming Gender and Energy in the UN Commission on Sustainable Development (CSD 14 and 15): Report on ENERGIA's CSD 14 Activities

Kgetsi ya Tsie, www.kgetsiyatsie.org

The Mirror, 2006. 'Mogae turns tables on women'. Article by B. Gopolang, March 15 – 21, Gaborone

Mr. Onkokame Kitso Mokaila, 2006. Speech by Minister of Environment, Wildlife and Tourism at the 14th Session of the Commission on Sustainable Development, New York. http://www.un.org/esa/sustdev/csd/csd14/statements/botswana_11may.pdf

SADC, 2006. Report on the SADC Consultative Conference on Gender and Development

Segwai, K, 2006. 'Massive solar project targets 88 villages'. Article in Mmegi newspaper, March 8, 2006

United Nations, 2001. Commission on Sustainable Development. Report on the night sessions (May 5, 2000 and April 16 – 27, 2001)

Ghana Gender and Energy National Paper

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This paper discusses Ghana's energy needs, with particular reference to progress made in incorporating a gender perspective into the energy sector to ensure sustainable development. Based on the outcomes of a national consultation process supported by ENERGIA, this paper identifies constraints and concerns regarding gender and energy issues that are factors affecting sustainable development and achievement of the Millennium Development Goals (MDGs) in Ghana. These factors include a low emphasis on implementing policies on renewable energy and energy efficiency that would positively affect the majority of Ghanaian women, and the fact that women's influence in decision-making on energy is almost negligible.

A consultation process involving major actors and stakeholders engaged in gender and energy-related activities in Ghana was organised to discuss areas of concrete progress, constraints, challenges and emerging issues on Ghanaian women's participation in decision-making related to energy. The national consultation process included participants from government, non-governmental organisations (NGOs), academic and research institutions, community-based organisations, the private sector, women groups and existing gender and energy-related networks in Ghana.

Key recommendations:

- *Given the fact that Ghana has a considerable number of qualified women scientists, social scientists, academics and management consultants serving in both international and national organisations, there should be active implementation of affirmative action to appoint women to key positions in energy policy-making institutions.*
- *In cases where there is a shortage of women with the required skills, the government, in collaboration with civil society organisations and the donor community, should identify women who can be trained to represent the interests of women, so they can effectively influence, formulate, implement and evaluate energy policies.*
- *At the local level, women must be involved in the selection, promotion and use of alternative energy resources that are more energy efficient and environmentally friendly.*

Background on Energy in Ghana

The current patterns of energy supply and consumption in Ghana are unsustainable in socio-economic and environmental terms. Over the past decade, Ghana has relied on biomass and petroleum products as prime energy sources. For instance, in 1996, biomass (primarily wood fuel and charcoal) constituted 67% of the total energy consumed, while petroleum products and electricity accounted for 19% and 13.7% respectively (RCEER/ISSER, 2004). Between 2000 and 2003, energy from biomass averaged 63%, petroleum products 27% and electricity nearly 9%. As Ghana seeks to become a middle-income country by 2015, the energy needs of the country are likely to increase. The Strategic National Energy Plan (SNEP) 2006-2020 prepared by the Energy Commission projects a rise of wood fuel consumption from 14 million tonnes in 2000 to between 38 and 48 million by 2012, and 54 - 66 million tonnes by 2020. Similarly, total petroleum fuel demand is anticipated to increase from 1.6 million tonnes in 2000 to over 3 and 4.5 million tonnes by 2012 and 2020 respectively. Lastly, grid electricity demand is expected to quadruple from 6,900 Gigawatt-hours in 2000 to 24,000 Gigawatt-hours by 2020.

These alarming figures prompt two questions. First, is Ghana running an energy efficient economy that can ensure sustainable development for future generations? If not, what steps can Ghanaians take to promote an energy efficient economy and sustainable development for all? To attempt an answer to these questions requires a close look at the status and roles of key agents of energy consumption and the challenges hindering their full participation in the use of cost efficient energy sources and the promotion of an energy efficient environment.

As in most developing states, many people in Ghana – particularly women in rural households – still depend on traditional fuels like wood, charcoal and cow dung for cooking and for energy-intensive livelihood activities. Without modern energy services, most rural dwellers spend their time and physical strength to supply fuel for their households, often at the expense of education, good health and opportunities to engage in more productive income-generating activities. Women are the most affected by the lack of modern energy sources, as they bear the responsibility of meeting the energy needs of their households. To do so, many women harvest wood fuel, carry-

ing loads of fire wood over long distances to their homes and using them to cook for their households in ways that leave the women perpetually exposed to unhealthy smoke and heat.

With regard to energy services, the plight of women in rural communities has been worsening over the years. In 1998, statistics showed that 53.8% of Ghanaians nationwide had access to electricity while people in rural areas and the rural poor had 48.3% and 37.6% respectively. Within that year, it was observed that 34.7% of rural dwellers and 21.0% of the rural poor used non-wood fuel for cooking, compared to the national average of 44.4%. In 2003, the statistics showed a decline both in access to electricity and in the use of non-wood fuel in cooking. For access to electricity, the national figure dropped to 50.6%, while that for rural areas and the rural poor plummeted to 24.9% and 7.2% respectively. Regarding use of non-wood fuel in cooking, though the national statistic dropped marginally to 43.4%, rural dwellers and the rural poor recorded staggering drops, to 14.5% and 6.8% respectively (CWIQ, 2003). Given that the majority (57%) of Ghanaians live in rural areas, the statistics show that many people, especially women, lack access to electricity and rely on biomass for cooking.

Key Energy and Gender Issues Identified

In his keynote address on the theme “Promoting the Millennium Development Goals through a Stronger United Nations” at a seminar held in Accra on 16th August 2005 under the auspices of the UN System in Ghana, Ghana’s Foreign Minister Honourable Nana Akuffo-Addo affirmed Ghana’s commitment to the achievement of the MDGs by 2015 and stated that “developing countries should not fail to appreciate the international political dimensions of achieving those goals, especially the fact that the MDGs are essentially addressed to us and we are solely responsible for their implementation through our respective programmes”. Concisely stated, Ghana aims to achieve its MDGs through national programmes. It is therefore imperative to analyze the various national development plans since the MDG declaration in 2000 to observe progress to date and energy-related barriers to achieving Ghana’s MDGs.

A. Key Energy Issues

Since the early 1980s, when Ghana suffered a severe economic decline that affected the generation of hydro-electric power, many activities have taken place within the country’s energy sector in the form of reforms that were part of Ghana’s Structural Adjustment Programmes (SAP). Most of these energy sector reforms have outlived the SAP but are still being implemented. By 2000, these reforms formed the nucleus of an energy policy for Ghana. However, following the 2000 presidential and parliamentary elections which brought the New Patriotic Party (NPP) into power in early 2001, a new energy policy was developed as part of the Ghana Poverty Reduction Strategy (GPRS I). With the phasing out of GPRS I by 2005, current energy policy documents are in the draft phase, yet to be passed into law. These policy documents are the Growth and Poverty Reduction Strategy 2006-2009 (GPRS II) and the Strategic National Energy Plan 2006-2020 (SNEP).

The GPRS I aimed at the development of a reliable and

affordable energy sector that will promote the development of basic infrastructure to support economic activities, especially in the rural areas, and ultimately reduce poverty. Hence, the strategy contained measures for: improvement of the technical efficiency of utility corporations through restructuring and deregulation of the petroleum sector; completion of the West Africa Gas Pipeline project (WAGP) and the Bui dam; expansion of the thermal plant at Takoradi; and increased use of solar energy. For the rural areas, the policy targeted the development of renewable energy technologies such as solar, wind and biogas, the introduction of liquefied petroleum gas (LPG) in rural areas, and rural electrification. The energy plan in GPRS I also envisaged the need to sustain the environment through the development of community wood lots for wood fuel production. The broad policy objectives of GPRS II target: increased access to modern forms of energy to the poor and vulnerable; full cost recovery for power supply and delivery while protecting the poor; productive and efficient use of energy and minimisation of the environmental impacts of energy supply and consumption; private sector participation in the energy sector; and diversification of the national energy mix by implementing programmes to support renewable energy sources in Ghana. Lastly, the SNEP documents also contain targets to reduce the wood intensity of charcoal production by varying proportions in the savannah and forest ecological zones, and to reduce, by 2020, the proportion of biomass (wood fuel) use in Ghana’s energy mix from 60% to 40%.

In assessing progress in the energy sector, a look at the commitments by official donors and the government shows a low level of attention to the issues of interest to women. For instance, quoting the ILO, Mensah-Kutin (2002), noted that between 1979 and 1982 almost half of all official assistance from the Organisation for Economic Cooperation and Development (OECD) to developing countries went to the electricity sector, with only 2% being used to support fuel wood, charcoal, solar and biogas programmes, the sources most likely to be accessible to rural people in developing countries. Additionally, in the 2003 annual progress report on the energy sector of GPRS I, for most of the objectives set for renewable energy, no activity took place. This contrasts sharply with the activities on the WAGP and petroleum deregulation, which were all being implemented according to set time frames.

Incidentally, the renewable energies which affect the livelihoods of most women received the least attention from policy implementers. This is confirmed by the declines for rural dwellers and the rural poor in access to electricity and use of non-wood fuel for cooking. What accounts for the low emphasis and attention on renewable energy which affects women and rural folks? One could hazard a guess that it is linked to the lack of involvement and participation of women in energy-related issues, especially decision-making at the highest level of policy making. This is further elaborated in the following section on key gender issues.

B. Gender and Energy

Women are the most important actors in the energy sector in Ghana in terms of their contact, use and management of renewable energy sources, which in their very crude or primary

form are used mostly by women. The most common energy sources are fuel wood, charcoal and cow dung. Fuel wood and charcoal account for more than 75 per cent of all energy requirements in the country, and an even higher percentage of energy for household cooking and water heating – in rural and urban areas alike (Owusu et al, 1989).

Most of the fuel wood needed for households is collected by women. It was estimated that annual fuel wood consumption in the country as a whole was approximately 17 million cubic metres in 2000, with annual declines in wood availability. The fuel wood deficit is primarily in the savannah and transitional zones (World Bank, 1988). Most of the fuel wood needed by rural households in the forest zone is collected by women from farms and fallow lands, while most of the urban fuel wood originates from savannah and transitional zones where there is increasing local scarcity because of high fuel wood demand for processing items like palm oil (Mayers and Kotey, 1996). The activities of chain saw operators also make some wood available for use as a source of energy.

Energy sources like shea butter oil for lighting are very popular in the northern part of the country, but generally the relatively cheap non-wood fuel option available for rural poor is kerosene. However, in recent times, this has become inaccessible to the rural poor, especially rural women. This is as a result of two factors – the increase in prices of petroleum products on the global market, and the latest decision by the National Petroleum Authority to reduce the relatively high price of kerosene. These two factors have led to the diversion of kerosene from the domestic setting for purposes like lighting, heating and cooking by the majority of rural as well as urban poor, to commercial settings like production of aviation oil. This has made it scarce for domestic use by the people who need it the most for their daily living and livelihoods. The promotion of the use of LPG was a laudable one, but this effort did not last, and it also has become very expensive and beyond the reach of many of the poor. Efforts at making it available in small quantities/sizes like 2 or 5 kg to make it affordable to the poor have not materialised. For these reasons, in addition to the earlier explanations, many households have reverted to the use of wood fuels, both in the rural and urban setting.

Fuel wood seems to be the only 'faithful' source of energy for poor households which is relatively accessible and affordable. But even so, it is not easy to come by fuel wood in some areas. The ease of access is dependent on the ecological zone, the distance that has to be covered and the energy needs of the household. The burden of meeting the energy needs of the household falls on the women. They suffer most in all 'energy deficit' situations because they are the hewers of wood and drawers of water, among the many responsibilities they have in their households. In their bid to ensure access to energy sources, women have to spend more time and physical energy in obtaining traditional fuels for their domestic purposes of heating, cooking and lighting. As these sources of energy become scarce, women have to cover longer distances and in so doing they risk facing situations of violence, assault, rape and physical and body injuries, and attack from animals. Their constant contact with fire also exposes them to respiratory infections and other diseases, like cataracts, and is a factor in low birth weights.

Despite the enormous responsibilities and risks women bear and are exposed to in their bid to ensure affordable energy sources, and their overall importance in the energy sector, their views are rarely sought in the decisions taken on issues concerning energy. This is basically because most of the decision-makers, managers and technical personnel are men and their attention is given more to generating more fossil fuel and electrical energy for industrial purposes than for domestic purposes that would show some level of sensitivity to women's energy needs and improve their situation. Probably also because of economic returns that fuels used for commercial purposes bring in, any appreciable attempt at according fuel for domestic purposes is thought of as being a big waste rather than an investment. Despite all these economic calculations, it behoves the state and all its institutions and relevant agencies to see to it that investments are also made in the economically viable things that will lead to an improvement in the lives of the majority of its citizenry, which happen to be poor rural and urban woman.

Ghana ratified the Convention on the Elimination of all Forms of Discrimination Against Women in 1986. As a result of national efforts to implement the Beijing Platform of Action, the Government of Ghana instituted some measures, one of which was the adoption of the Affirmative Action Policy Guidelines, which call for an increase to 40 per cent of the representation of women in key positions in public service and in national executive or policy-making institutions. As regards energy, the Beijing Platform for Action called on governments to support the development of equal access for women to sustainable and affordable energy technologies, including renewable energy efficiency technologies, through participatory needs assessment, energy planning and policy formulation at local and national levels. An assessment of how Ghana has fared in light of the above policy guidelines and commitments in incorporating gender issues into the area of energy has revealed that as a nation, we are very far from achieving this aim. In terms of consultation, participation and management of the energy sector, women are under-represented.

Considering, for example, the Energy Commission of Ghana, which is a statutory regulatory body on energy and works on energy policies with the Ministry of Energy, and the Public Utilities Regulatory Commission (PURC), representation of women on these commissions falls below the required number. The Energy Commission and the PURC have seven (7) and nine (9) commissioners respectively, all appointed by the President in consultation with the Council of State. Representation of the over 51% of the country's population who are women and who play a major role in the energy sector on the board of PURC is just 11%. Apart from this, the vital positions of chairman and executive secretary are occupied by men. The same story holds for the Parliamentary Caucus on Energy which has only one female Member of Parliament as a member, out of the more than 9 members. In addition, a reputable energy-related non-governmental organisation like the Energy Foundation also has only one female member out its 9-member executive council. For such important commissions and councils as mentioned above, one female

voice is not enough to carry across all the energy needs of women and their challenges. Although there are a number of women employed in the Energy Ministry, most of them are found in the lower levels of management as support staff for administration.

Understanding gender needs in relation to energy should include an adoption of new methods and types of analyses to give meaning to the needs and priorities of both men and women as end-users. These new approaches to data analysis with respect to gender and energy will also make available more detailed data on the various dimensions involved in the actual use of energy. This in turn will make energy projects more effective and beneficial to the targeted group and lead to development, especially in the rural areas.

Recommendations for National Level Actions

The following recommendations are being proposed for effective engagement of women in energy planning, policies and decision-making processes at the national, regional and local level:

A. National Level

Ghana can boast of a considerable number of qualified women, including women scientists, social scientists, academics and management consultants serving in both international and national organisations. It is therefore ironic that very few women are involved in policy-making and implementation within the male-dominated energy sector of Ghana. This requires the active implementation of affirmative action to appoint women (40% of all appointments) to key positions in public service and in national executive or policy-making institutions. In cases where there is a shortage of women with the required skills, the government in collaboration with relevant organisations – like civil society organisations and the donor community – can identify women who can be trained to represent the interests of women. Training for these women should be tailored towards making them competent enough to influence, formulate, implement and evaluate energy policies. Additionally, there can be advertisement for these energy-related positions and encouragement of more women to consider sending in their applications. Further, the government should create policy space for women caucuses in Parliament and nationally-based NGOs to participate in energy policy decision-making and implementation.

B. Regional Level

At this level, an increased increment of women representation at the Regional Coordination Councils (RCC) is highly recommended. There are qualified women who head district offices of decentralised departments and agencies who can be encouraged to shape energy-related policies at the regional level.

C. Local Level

The energy needs of women at the local level are most profound, as this is where women are the main providers and users of energy. At this level, women must be involved in the selec-

tion, promotion and use of alternative energy resources that are more energy efficient and friendly. Considering that women at the local level are organised and engaged in livelihood activities that are energy-intensive, like cooking for both domestic and commercial consumption, shea butter processing, and soap making, among others, encouraging their full participation at this level is very prudent in ensuring cost effective and efficient use of energy sources.

Conclusion

Based on the preceding review of the gender and energy situation in Ghana, this paper recommends the full participation of women at the various levels of decision-making in the energy sector to achieve affordable and prudent use of energy sources to promote sustainable development. If greater attention is given to the energy needs and concerns of women, progress made in this sector will result in overall socio-economic development of not only the present but also the future generations.

References/Readings

- Energy Commission, 2005. Strategic National Energy Plan 2006-2020 Volumes 1& 2
- Ghana Statistical Service, 2003. Core Welfare Indicator Questionnaire
- Government of Ghana, 2003. Ghana Poverty Reduction Strategy 2003-2005. An Agenda for Growth and Prosperity
- Government of Ghana, 2005. Growth and Poverty Reduction Strategy Draft 2006-2009
- Mayers, J and E. N. A. Kotey, 1996. Local Institutions and adaptive forest management in Ghana. Forestry and Land Use Series No. 7, International Institute for Environment and Development, London
- Mensah-Kutin, R, 2002. Gendered Experiences of Access to Electric Power: The Case of a Rural Electrification Programme in Ghana. University of Birmingham: unpublished PhD thesis
- Nana Akuffo-Addo, 2005. Keynote Address at Seminar 'Promoting the Millennium Development Goals Through a Stronger United Nations', August 16, Accra
- National Development Planning Commission, 2003. Implementation of the Ghana Poverty Reduction Strategy, 2002 Annual Progress Report
- Owusu, Manu, Ofori, and Ntiamoah-Baidu, 1989. Report of the Working Group on Forestry and Wildlife. Revised Version. Prepared for the Environmental Protection Council, Accra
- RCEER/ISSER, 2004. Final Report on Socio-Economic Impact of Petroleum Deregulation Policy, University of Ghana
- World Bank, 1988. Staff Appraisal Report: Ghana Forest Resource Management Project. Unpublished report No. 7295-GH, Western African Department, Agricultural Operations Division

Mainstreaming Gender and Energy in Lesotho

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This paper examines energy and gender issues in Lesotho, with particular reference to development activities and implementation of the Millennium Development Goals. It was prepared based on a consultative process in connection with CSD preparations among members of the Gender and Energy Network of Lesotho (GENOL), a national affiliate of ENER-GIA, which includes representatives from the government's Departments of Energy and Gender, National Environment Secretariat, and Ministry of Finance and Development Planning, as well as NGOs, academics and energy experts.

Although the government is aware of the importance of mainstreaming gender and energy in its programmes, and participates in the GENOL and other energy forums, the country's Energy Policy does not yet reflect this concern. Therefore, there is a need for additional work to ensure that mainstreaming of gender and energy is clearly included as a critical aspect of all energy policies, plans and programmes. In the past the influence of women on policy planning and decision-making in Lesotho was limited, but efforts are now underway to create more opportunities for equal participation, and greater attention to women's energy needs.

Traditionally, Lesotho has been a patriarchal society, but women often acted as heads of households due to the migration of men to South Africa for work. The norm was that young boys herded livestock, before ultimately taking up employment in South Africa. Recently, however, changes in the mining industry and the creation of new jobs for women in Lesotho's garment sector as a result of US trade preferences, have created shifts in traditional gender roles and control over incomes.

Still, close to 90% of the country's total energy consumption is for cooking, heating and domestic uses, and only 11 percent of households have access to electricity. Rural women use up precious daylight hours collecting traditional biomass fuels to provide for the needs of their families. Young women are also experiencing high infection rates from HIV and AIDS, but having to take on additional responsibilities in providing for the needs of others who are ill.

Key recommendations:

- *Develop a nationwide information sharing system on gender and energy, with a database compiled and maintained by the Committee on Environmental Data Management.*
- *Promote greater representation of women in national government and local authorities, and research on better integration of gender concerns into energy policies and programmes.*
- *Support training and career development for women in the energy sector and other technical professions.*

Background on Energy and Gender in Lesotho

It is a well documented and acknowledged fact that affordable, accessible and reliable energy supplies are central to achieving sustainable development goals. However, sometimes this crucial issue fails to reach the sustainable development agenda at all because there are no specific Millennium Development Goals relating to energy. Energy is clearly needed to help achieve the MDGs on education, health, and empowerment of women, and ideally has strong links with poverty reduction.

In 2005, Lesotho was ranked at 149 out of 177 countries on the UNDP's Human Development Index. Like neighbouring countries, Lesotho's position has dropped considerably because of a decreasing life expectancy due to HIV and AIDS.

Lesotho is a mountainous country covering an area of 30,355 square kilometres, and the only country in the world which has all its land more than 1388 meters above sea level. Arable land is severely limited and at present only about 10 percent of the land is under cultivation. With the moun-

tainous topography of the country, the highlands of Lesotho are often cut off from the lowlands with regard to basic necessities, such as health services, food and energy supplies, especially in the snowy, severe winter season. In addition, Lesotho is completely landlocked by the Republic of South Africa, and its history and socio-economic development is inextricably linked to that of South Africa.

Although Lesotho's society has traditionally been patriarchal, with the man as the head of the family and the sole decision maker, women were often de facto heads of households due to excessive male labour migration to South Africa. However, households actually headed by women have had significantly higher levels of poverty than those headed by men, and this income gap has also contributed to a disparity with regard to access to all commodities, and energy in particular.

The norm used to be for young boys to herd livestock, and later seek employment in the South African labour market. Due to the employment of boys, primary school enrolment was higher for girls than for boys – a reversal of the situation

in other countries where girls have been customarily discriminated against in accessing primary education. This gap is now closing, due to free primary education offered by the government, and the realisation by rural households that a formal education is the sole likelihood of obtaining a secure future. Still, school children in rural areas are sometimes deprived of part of their education by having to spend time collecting biomass fuel for use in school kitchens.

Lesotho's economy is beginning to shift from a primarily agricultural-based economy to one more reliant on manufacturing. Lesotho's garment manufacturing sector has grown significantly as a result of trade preferences under the United States Government's African Growth Opportunities Act (AGOA), overtaking the public sector as the nation's largest formal employer – with some 45,000 jobs at present. Women hold most of these jobs. Combined with the large number of recent retrenchments from the South African mines, this has begun to introduce a shift in gender relations, with changes in control over disposable income and access to commodities, including energy.

The Ministry of Trade and Industry is currently supporting capacity building within the garment industry through on-the-job training and programmes at vocational institutions. The workers in this sector will be equipped with skills so that they can hold managerial positions, and also gain technical know-how enabling them to sew a whole garment rather than working on just one piece of it. The result will be better salaries and remuneration packages for women employees.

Energy needs and the country situation

Lesotho faces significant challenges with regard to energy for sustainable development. About 85 to 90 percent of the country's total energy consumption is still utilised in the domestic sector, and is used for cooking, heating water and space, lighting, and powering electrical appliances. Sources of energy include electricity, liquefied petroleum gas (LPG), paraffin, firewood, coal, biomass fuels (i.e. crop residues, dung, fuel wood and shrubs), candles and solar energy. These sources and their extent of use differ between urban and rural households, depending on the availability of the source, and its cost vis-a-vis household income. Commercial energy constitutes about 10 to 15 percent of the country's energy demand, and is provided through imports from South Africa.

The government has set a goal to improve the welfare of the people through increased access to electricity, which is currently limited to 11 percent of all households. The target is to reach 40 percent by the year 2020. See the details below:

LESOTHO GOVERNMENT TARGET FOR HOUSEHOLD ELECTRIFICATION	
Number of households	440 000
15 years growth in number of households	60 000
Total number of households by 2020	500 000
Current connections (11%)	50 000
Target = 40% (of 500 000) by 2020	200 000
Total number of new connections by 2020	150 000
This means an average number of new connections per year of	10 000
Thus, the average rate of new connections = 10.5% per year	

The electrification goal is being facilitated by implementation of the National Electrification Master Plan for Lesotho, and establishment of the Lesotho Electric Authority. Other challenges include introducing appropriate reform measures, developing institutional capacities and responsibilities for electrification, and increasing energy service delivery in rural areas. The government is studying the potential social impacts of sector reform, including tariff adjustments, and determining effective measures to include the poor in new programmes and ensure their protection from adverse adjustments.

Key activities for rural areas include: development of a Rural Electrification Master Plan; establishment of a Rural Electrification Unit, identification of economically productive/business centres in rural areas for prioritised electrification; reduction of backlogs of applicants; and mobilisation of funding by the established National Rural Electrification Fund (NREF) to subsidise the cost of electrification projects.

The government recognises that the majority of the poor use biomass as their primary fuel, and will continue to do so. It is focusing on improving access to modern fuels in rural areas, shifting to fuels that are less demanding from both an environmental and social perspective, and also increasing resources allocated to forestry, especially expansion of private and public woodlots.

The Petroleum Fund under the Ministry of Finance and Development Planning regulates prices of petroleum products. The Fund has increased the prices of these products under pressure from high international crude oil prices. Higher prices for petrol and paraffin will impact negatively on many in the country, especially poor households.

There is currently no provision for incentives to use cleaner energy technologies. Rebates for renewable energy technology users or specialised tariffs are not in place yet. However, the government supports the use of improved institutional stoves in their primary schools where they have school feeding programmes. ProBEC and the World Food Programme give support to one private initiative that produces energy saving stoves, in that they purchase the stoves for use in rural primary schools. More support and incentives are needed for energy saving technologies, to make a much more significant impact.

Gender and Energy Issues

Prevailing gender disparities in Lesotho are a real obstacle to effective participation of women in the socio-economic and political development of the country. In an attempt to alleviate these disparities, the government stipulated that in the April 2005 local government elections, 30 percent of council seats were to be filled by women. Women now also constitute 31 percent of Cabinet Ministers, and 25 percent of Assistant Ministers.

Historically there has been a lack of gender-specific approaches to energy issues, but this is gradually being addressed. The Department of Gender within the Ministry of Environment, Gender and Youth Affairs became operational in 2000, and has taken on the role of advocating for equal participation of women and men in national elections. After the 2002 elections, the Ministry of Gender and Youth, Sport and Recreation was established.

The Department of Gender has formulated a Gender and Development Policy, which was adopted by the government in 2003. The Policy provides a framework for addressing “the challenges of gender inequities and inequalities, poverty, increased spread of HIV/AIDS and unemployment by adopting a rights-based approach to development.”

There are no specific energy considerations in the Gender and Development Policy, or gender considerations in the Energy Policy. This shows that mainstreaming of gender and energy issues still needs to be clearly incorporated into government policies. Nevertheless, the government is aware of, and to some extent vocal about, the need for mainstreaming gender and energy in its programmes. For example, representatives of the government are participating in the Gender and Energy Network of Lesotho and other energy forums.

Collection of the biomass needed for cooking and heating – crop residues, dung, fuel wood and shrubs – is increasingly difficult and time-consuming. Women have less time for other productive work and, in addition, men psychologically and socially abuse women when they are collecting fuel. This collection process exhausts women and damages their health; it also exhausts natural resources, thereby damaging the environment. The health and environmental impacts of using biomass seriously inhibit prospects for achievement of the country’s health-related MDG targets for reducing child mortality and maternal mortality rates, as well as environmental sustainability targets.

Maternal mortality in Lesotho is on the increase in spite of efforts to improve maternal and newborn health care through a safe motherhood programme, and strategies to address the HIV/AIDS pandemic. The HIV and AIDS pandemic continues to jeopardise all gains made towards sustainable development. However, the government has set the ambitious goal of fighting the epidemic as a matter of national priority. The scourge of this disease has decimated the population and made the issue of access to energy and its sustainability even more crucial. The disease is disproportionately affecting young women, who are susceptible to higher infection rates but still are expected to provide for the family’s energy needs and also expected to care for others who are affected by AIDS – as a result often sacrificing their education and hopes for the future.

Since burdens from collecting biomass fuel and lack of alternative energy fall so heavily on women, there is an urgent need to assess energy programmes in terms of their effects and benefits for women and involve women in decisions regarding both the planning and implementation of energy solutions. It is particularly important to coordinate energy policies with broader economic, health and poverty reduction efforts, including specific initiatives to continue to expand economic opportunities for women.

Ongoing Activities and Initiatives in Energy and Gender

In order to try to rectify the situation of gender disparities, the government and civil society institutions have embarked on the following activities:

Gender and Energy Network of Lesotho (GENOL) This network was established at a 2001 workshop hosted by the Institute of Education of the National University of Lesotho (NUL), with participants from ENERGIA, the University of Twente, TOOL Consult in Amsterdam, United Nations Development Fund for Women, and from Thailand, India, USA, Kenya, Lesotho and Zimbabwe. GENOL is a national network which is an affiliate of ENERGIA, and includes representatives of the Department of Energy, Appropriate Technology Section, Department of Gender, Ministry of Finance and Development Planning, National Environment Secretariat, LEINET, World Vision Lesotho, Care Lesotho, Rural Finance Project, Sechaba Consultants, Solar Matla Lesotho, Da Planet Shop, Ntlafalang Consultants, Institute of Extra Mural Studies and the Maseru City Council, and Khalema Redeby Consultancy Services.

The objectives of the Gender and Energy Network are to:

- facilitate and promote information exchange among members on energy and gender
- make women and men aware of different sources of energy and its technologies
- create a forum for women and men to discuss and exchange information on energy and gender
- encourage education in activities that promote gender and energy
- facilitate maximum collaboration and cooperation
- empower women and men through training and research on energy-related matters
- provide women and men at grassroots level with skills that strengthen their role in sustainable energy development
- liaise with other national, regional and international networks
- work closely with the Department of Energy and the Department of Gender on matters concerning energy and gender in Lesotho.

Appropriate Technology Services (ATS) evolved from the 1981 Renewable Energy Technologies (RETs) Project. Shortly after the project lapsed in 1985, the government established the Appropriate Technology Section as a RETs project under the Ministry of Local Government. In 2003 the Section was renamed Appropriate Technology Services. ATS’s overall objective is to research, develop and apply appropriate technologies to achieve sustainable development, directed by continuous needs assessments, and to foster a culture of continuous improvement.

Currently ATS has seven programmes, some of which were initiated based on community needs identified in the Appropriate Technology Needs Assessment Study of 2000. Its renewable energy, energy conservation and biomass technology programme is designed to research and develop technologies that will promote conservation of biomass fuel reserves and the adoption of RETs (harnessing solar, wind and hydropower) to satisfy domestic and commercial energy requirements.

Ongoing projects include the following:

- development of commercial solar dryers
- development of solar ovens
- solar powered electricity generator (in partnership with Massachusetts Institute of Technology and Bethel Business Community Development Centre)
- solar electrification of two clinics in Berea, working with the Ministry of Health
- improvement of current bread oven
- development of mobile biogas digester.

Recommendations for National Level Actions

Development and implementation of a Nationwide Information-sharing System

Although various institutions have data relevant to gender and energy issues, this information has not yet been brought together in a comprehensive database. This impedes the identification of gender differences in the energy sector and development of appropriate concepts and strategies. It inhibits the facilitation of sharing sound and up-to-date data on the participation of women in the energy sector, consumer behaviour, differences in energy consumption and usages between men and women, and changes that arise as a result of gradual removal of traditional gender roles.

A comprehensive database on gender and energy could be compiled and maintained by the Committee on Environmental Data Management (CEDAMA), whose responsibility is to collate data. All the participants in the energy sector, from government bodies, parastatals and NGOs should provide data that is gender differentiated. Based on this, gender differences can be well addressed and imbalances corrected.

Gender specific data in the country, especially in the rural areas, needs to be collected and aggregated. This can bring to light otherwise hidden discrepancies in policies on land ownership, access to credit, education, legal rights and participation in extension services. Most of these are already well documented as a result of the Basotho culture and patriarchal customs. Collected data will serve to illuminate the gender issues in the country to a greater degree, and serve to expedite measures already being undertaken to address these imbalances.

Research is also critical in order to develop better monitoring tools and examine ways to integrate gender concerns into energy policies and programmes. The data can also be applied to existing and new programmes in order to make them more responsive to the needs of women as well as men.

Active promotion and increased representation of women in the energy sector through intensive efforts to promote women in all energy-related institutions and organisations, and in vocational training

An effective gender and energy strategy requires more than just written policies and plans. The internal decision-making structures of the country, and the way they interact with other public and private stakeholders and institutions, are critical. Programmes and measures supporting women in the energy sector should be implemented across all strata.

In the professional sector, such measures as internal com-

pany training, improving the compatibility of family and professional responsibilities, and strategic career development should be introduced.

Representation in national and local authorities, as well as NGOs, should be carefully monitored and women-supporting programmes established to ensure that women and men play an equal role.

Educational institutions should increasingly engage in motivating girls and young women to choose professions historically treated as male-dominated, especially with regard to energy-related technical professions.

Women's organisations should emphasise the prioritisation of sustainable energy specifically targeted at women's energy needs over conventional sources of energy which are not particularly suited to the energy needs of women in Lesotho. This can help contribute to the achievement of the country's MDGs, in that women's energy needs will be more adequately addressed, and the serious burdens faced by women in their duality of work and family roles will be alleviated.

Provision of modern energy services can free women from their time consuming and marginally productive activity of sourcing energy, and instead provide them with more time for income generating and poverty alleviating activities. Growth and employment opportunities could thus be generated in sectors where the poorest people, predominantly women, are concentrated, such as agriculture, industry and small and medium-scale enterprises. This will help to achieve one of the most important MDGs for Lesotho, which is eradication of extreme poverty and hunger.

Conclusion

If issues of gender are not included in all aspects of policy and strategic planning, and if both sexes are not treated equally, both personally and professionally, the resulting gender inequality becomes a major impediment to sustainable development. Reduction of gender inequality leads to improvements in access to education, employment, and sources of credit, as well as participation of both women and men on an equal basis in decision-making and professional bodies.

In order to address this effectively, in the context of energy, correlated policies must address and take into account the differences between men and women in access and control over opportunities and resources. Strategies should also take into account existing gender imbalances, taking cognisance of the dual role of women, in their professional capacity and in their role as primary care givers and nurturers in the household.

It is widely understood that approaches to energy planning need to take into account the disparities and unique situations that affect women and men in different ways. In this context the country needs to pay particular note of the following with relation to new programmes:

- *Research into gender issues and the dissemination of such data to key stakeholders and decision-making bodies. This will improve ongoing and future projects and provide much better opportunities for success.*

- *Women need to be integrated fully in all energy-related bodies and government institutions, and in the traditionally male-dominated educational spheres related to energy and its provision.*
- *Mainstreaming gender and energy issues into development must have, as a result, key stated policies and priorities that clearly establish the role of energy services in a poverty reduction context. It must also have a set of national energy priorities that the country considers crucial for attainment of the MDGs,*

showing targets for meeting those goals, as well as expected or budgeted funding for the programmes. This in turn will inform government, parastatals, and NGO actions and will provide a strategic direction that all key stakeholders will be aligned to and will work towards.

Ideally, gender and energy issues will justly, and beyond any doubt, become mainstreamed into Lesotho's MDGs.



"It is particularly important to coordinate energy policies with broader economic, health and poverty reduction efforts, including specific initiatives to expand economic opportunities for women."



Energy and Gender for Sustainable Development in Mali

Dieneba Cisse, Interaction Environnement - Population

The aim of the national consultation on gender and energy in Mali was to advocate that the government and the international community put a greater emphasis on the importance of gender in energy issues, and to formulate new recommendations for incorporating gender issues into energy policy. This report is based on inputs from government representatives, donors, energy experts, planners, women's organisations, and NGOs.

Energy consumption in Mali is mainly from biomass, with very low levels of access to electricity. Aware of the role played by women in biomass energy supply and consumption, and the importance of energy in economic development, since the 1990s the government of Mali has been implementing, in collaboration with its development partners, a number of programmes that consider gender issues.

However, currently in Mali there is little consideration of gender issues either in the National Poverty Reduction Strategy Paper or in the energy policy. Only weak consideration is given to the needs of women in the energy projects, local development plans and financing budgets. Modern sources of energy are often unavailable, and women have limited capacity to participate in decision-making processes to overcome these difficulties.

The recommendations drawn from this consultation are meant to address the institutional, financial, technical and technological barriers that hamper the incorporation of gender issues into the energy sector.

Key recommendations:

- *Explicitly include gender equity as a major objective in the framework for PRSP II, and designate one ministry to be responsible for progress on gender equity*
- *Support capacity building for inclusion of gender and energy concerns in local development plans and participation of women in local planning processes*
- *Search for better solutions and lower costs for the development of energy services, and continue adaptation of technologies based on the local realities of rural women, including development of jatropha-derived oil as fuel for running mills and multifunctional platforms.*

Energy and Gender Context in Mali

The main economic activity in Mali continues to be agriculture, which accounts for 45% of GDP, provides work for 80% of the population and is responsible for more than 75% of the country's export revenues. Mali is a poor country, with 73% of the population living on less than a dollar a day in 2002.

Biomass, primarily consisting of firewood and charcoal, occupies a central place in Mali's national energy consumption (81%), followed by petroleum products (16%) and electricity (3%). Less than 12% of the population of Mali has access to electricity. This rate drops to 1% in rural areas. Mali has considerable energy potential derived from agricultural residues, agro-industrial by-products, vegetable oil, solar and wind energy, but there continues to be an over-exploitation of forestry resources, with potential alternatives largely left untapped (National Directorate of Energy, 2004).

The Ministry of the Environment estimated that consumption of wood in 2004 amounted to 4.7 millions tonnes. This represents several hundred thousand hectares of forests in the south of the country. In a country where half of the land is desert, this situation increases the fragility of the ecosystems,

and has a negative impact on the population, especially women.

Cooking is one of the major uses for biomass fuel, and women are the main users of this type of fuel. Continued reliance on firewood contributes to the difficult economic, social and cultural environment for women and has serious implications for their health due to air pollution from cooking with firewood, and increasing time and distances travelled to harvest diminishing resources of wood fuels.

In rural areas women spend more than one third of their time collecting wood. In addition to the health issues, this laborious, repetitive and time consuming task hampers other possible income-generating activities and their participation in training that could improve their knowledge and capacity. Furthermore, daughters often assist their mothers in this task, putting their educations in jeopardy. Since many household tasks are physically demanding for women, technologies like cereal grinding mills, horse-drawn carts, and water-pumps can significantly improve the situation of women. All these technologies require the availability of energy (animal power, electricity, solar or wind energy).

In the urban areas, monthly expenditures for the purchase

of firewood varies between 6,000 FCFA and 10,000 FCFA (in Bamako), which represents about 10-15% of the income of middle-income households. Women bear the entire burden of these expenses.

Gender and Energy Policy in Mali

A. Poverty Reduction Strategy Paper

Departmental policy, specifically energy policy in Mali subscribes to the framework of the national Poverty Reduction Strategy Paper (PRSP). All departments use the PRSP as the sole reference for policies and medium-term strategies, and it is the principal document for negotiation with financial partners. The PRSP addresses the dual challenges with which Mali is confronted:

- To work out a national policy adequate to ensure strong and durable growth and more effective development; and
- To establish the path and means by which to make it possible to integrate the poor in this process of growth and development.

The objective and strategies related to energy can be found in section three of the PRSP: “To develop basic infrastructures and the producer sector”, which describes “the development of the energy sector” as follows:

■ Objectives:

- i) production and distribution of electricity at lower costs;
- ii) increased access to electricity;
- iii) the reduction of wood consumption by the use of improved equipment and substitution;
- iv) the implementation of a programme that will promote solar energy and photovoltaic equipment.

■ The strategies to be implemented:

- i) development of and access to profitable energy sources (hydroelectricity, new/renewable energies);
- ii) strengthening of existing infrastructures;
- iii) the development of a policy of sub-regional co-operation;
- iv) educating populations to use alternatives to firewood to meet their energy needs;
- v) exempting new/renewable energy equipment from taxes and duties;
- vi) continuation of the privatisation of ‘LEnergie du Mali’ (EDM);
- vii) transferring competencies to local communities, specifically facilitating the ability of local communities to install and maintain systems themselves;
- viii) the creation of a regulating body for the electricity sub-sector;
- ix) development of forests to meet energy needs and the creation of new forests to satisfy future needs while contributing to environmental protection (the Carbon Well).

Gender equality is a crosscutting theme in the PRSP. However, the framework does not emphasise the implications of gender power dynamics, and neglects issues such as access, control and use of resources, income, and funds. By offering

services based on localities, rather than focusing on gender-specific services, the framework ignores key poverty indicators, and preserves existing inequalities between rural villages, medium-sized towns and large cities, and between various areas.

The PRSP objectives specific to energy policy aim to:

1. Satisfy the energy needs for the country in quality, quantity and at lower costs;
2. Ensure the protection of personal property and the environment against the inherent risks of the energy industry;
3. Reinforce orientation, management, control, and strategic direction capacities in the energy sector;
4. Reinforce in Mali the advantages of international co-operation related to energy.

B. Household Energy and Universal Rural Access Project

This project was put in place by the Malian Agency for the Development of Household Energy and Rural Electrification, whose specific objectives by 2010 are:

Regarding Rural Electrification: To accelerate the use of modern energy in rural communities and areas surrounding urban centres. The aim is to set up approximately 500 community or institutional photovoltaic solar systems (for collective services, health centres, photovoltaic water-pumping, administration) and approximately 10,000 domestic photovoltaic solar systems, to interest more than 70,000 customers from targeted areas in electrical services, and to install approximately 72 multipurpose platforms with electric components.

Regarding Domestic Energy: To promote forest management at the community level. The aim is to update and produce supply mechanisms for firewood, create rural wood markets, create modern village associations for producing coal, introduce technologies such as improved coal furnaces, wood hearths, oil-based heaters, charcoal, low-consumption lamps and evaporative cooling systems, and increase the use of butane gas.

Though not specifically gender-sensitive, this programme does address women’s energy problems and provide the following benefits:

Health: Improved stoves and alternatives to firewood save energy and reduce health problems and expenditures (i.e. pulmonary diseases and eye problems) for women and children. Solar refrigerators to transport vaccines to rural areas, and photovoltaic electrification for health centres, improve health care.

Education: The electrification of literacy centres increases the number of women who attend, since they only have time at night for this sort of activity, and consequently raises their level of education. With improved cooking and food processing technologies, girls can be released from their burdensome responsibilities like fetching water, collecting wood, or grinding grains by hand, and attend school.

Communications: Televisions and computers (with access to the Internet) powered by photovoltaic systems can contribute to the creation of extremely important development dynamics.

Income generation: Motorised equipment like grinding mills and multipurpose platforms save women's time, open up opportunities for training and employment, and generate additional income for women. Equipment for developing small and medium-sized enterprises (especially in the food industry) is of substantial benefit to women. There are also increases in the capacities and incomes of women through their integration into rural firewood management plans, reinforcing their management and leadership skills.

Changes to the roles men and women play: Technologies are an important element in this transformation of roles. For example, men would readily agree to transport wood or produce by cart, however they would not be so willing if it was a matter of carrying a basin on their heads. The more pronounced economic role of women and their leadership capabilities has also contributed to the shifts in roles. Extra income generated by women allows them to make a greater contribution to household needs, thus reinforcing their roles and decision-making powers.

Reduction of natural resource degradation: The organisation of wood management, by setting up supply schematics, and the diffusion of alternative technologies, reduces negative ecological impacts and has long-term benefits for women collecting wood for fuel.

In connection with this programme, a number of initiatives have also been taken on by NGOs to support the lightening of work for women and the improvement of their living conditions, for example, through the introduction of equipment such as mills, solar or wind pumps, transport or ploughing facilities, shea-nut presses, solar dehydrators and water heaters, and telephone booths. Literacy programs, increased organisation, income-generating activities, and other training programmes accompany these technological improvements.

Constraints Affecting Progress on Gender and Energy

Institutional

Gender equity was not included as a major objective in the PRSP, nor in energy policy. It is also not an objective of the Household Energy and Universal Rural Access Project; the recommended monitoring mechanisms and indicators only take into account total impacts and do not differentiate between women and men. Monitoring indicators consider the supply of goods and services (i.e. amount of equipment distributed, areas exploited) but not their effects. Indicators of effects would allow not only the measurement of situational changes for women, but also relational changes (as compared to men).

The energy needs of women go beyond the energy policy framework, and extend to policies for other sectors such as transportation, health and education where gender distinctions are also rarely recognised. For example, the country road

programmes do not take into consideration major issues like promoting improved transportation options for women, or the gender-differentiated impacts of transportation costs, given the limited purchasing power of women.

The Malian Agency for the Development of Household Energy and Rural Electrification (AMADER) does not have exclusive responsibility for setting energy policy in Mali, but does have responsibility for monitoring all the results attained in the energy sector. The agency has not yet put in place coordination and monitoring systems that would show all the efforts made by various stakeholders and allow for effective evaluation of progress in terms of gender.

The plan for economic, social and cultural development (PDSEC) is the framework for government decentralisation. The PDSEC has concentrated primarily on education, health and municipal government infrastructure problems. Energy-related issues were very seldom taken into account in communities. Lack of consideration for the participation of women in the development of these plans, neglect in addressing the concerns of women (whether regarding energy or other issues), and the failure of communities to put these concerns into local budgets all indicate the weakness of the strategy.

Financial

A major constraint is the investment costs of technologies. Although considerable efforts are under way to facilitate access to certain technologies (kitchen equipment, gas subsidies, etc), others such as photovoltaic or wind technologies remain out of reach for a majority of the population, especially women. Initially, the collective and non-productive nature of certain equipment meant that the community had to find sources of financing by appealing to potential partners. Later it became common practice for equipment to be subsidised either through specific development projects, or through interest-free credits offered by NGOs. Women have been able to obtain access to credit for some purposes thanks to the numerous micro-finance institutions situated in the different regions. However, the use of credit to meet energy needs remains problematic. The conditions of access and the constraining payment procedures imposed by micro-finance institutions have discouraged women, who were convinced that under these conditions they would not be able to profitably engage in activities and pay off their debt.

Technological

On the research level, some problems still exist in adapting certain technologies to the local realities of rural women. For example, solar cookers and those using gas are not conducive to traditional cooking. The development of the potential use of jatropha-based biofuel would constitute an interesting alternative to fossil fuels, which are costing more and more, and limiting the profitability of equipment like grinding mills and multipurpose platforms. The results obtained with other biomass-based fuels are interesting but need to be further researched to increase their effectiveness. (Charcoal made from crop waste continues to pose some problems.)

Recommendations for Actions at the National Level

1. In the formulation of the framework for PRSP II, gender equity must be explicitly stated as a major objective and considered in each strategic point. The monitoring and evaluation mechanism must thereby reveal both the results and impacts of projects, making it possible to collect, process and sort data by category. Information in the database must be structured so as to clarify the distribution of services and goods not only according to zones (medium, rural and urban) but also according to gender and specific community uses.

2. To guarantee that gender and energy concerns are taken into consideration the responsibility for coordinating greater synergy and harmonisation between the various policy sectors articulated in the PRSP must be entrusted explicitly to one ministry. It seems that currently the ministry responsible for the promotion of women is supposed to address these issues, but they do not deal with all the complexities of gender.

3. Reinforcement of the capacities of commune teams on the concepts of gender and the participative steps for taking into account energy concerns and gender in the local plans of development of the communities (i.e. objectives, definition, activities, planning, budget planning, search for funds, operational concerns, monitoring) would help allow women to meet their energy needs.

4. A search for lasting solutions and lower costs for the development of energy services should result in:

- Increasing the capacity of men and women to access the different technologies (reduction of import taxes, access to credit etc.) Departmental budgets should make provisions for specific budgets for women and also budgets to address the different challenges men and women face.
- Supplying communities with renewable energy equipment for health centres, literacy programmes, well pumps, etc., has proved its relevancy to the development of women's socio-economic activities. Therefore this approach should be systemised in all the programmes. In the investment plan it is important to concentrate on underprivileged areas (i.e. those with unfavourable climate conditions) where the women have even more difficulties in access to and management of natural resources.

5. The development of technical capacities and literacy of women will help them to participate more efficiently in local planning processes (identifying their needs, participating in meetings, defending the integration of their needs in the activity plans, contributing to the defining of programmes, obtaining financing, and execution/monitoring/evaluation of activities).

Providing access to information (in real time) to women about politics and strategies, existing technologies (including their accessibility and advantages) through appropriate channels and simple pedagogic tools coherent and adapted to the technologies will assist women so that they can make choices more easily.

6. Continue carrying out research for continued adaptation of technologies based on the local realities of rural women, including development of jatropha-derived oil as fuel for running mills and multifunctional platforms.

Conclusion

Energy policy plays an important role in the supply of goods, equipments and services, facilitating increased access to energy, and environmental conservation. These projects indisputably contribute to capacity building and financial autonomy of women, giving them the possibility to change the conditions of their lives and their entire communities.

The current approach follows the logic of increasing access to goods and services and improving incomes. It fails, however, to analyse or influence power relations pertaining to women and men. Failure to do this in the definition of local development plans is particularly important, since these plans are the only ones able to give greater scope (territorial and quantitative) to energy expansion strategies. Taking gender issues into account would facilitate the discovery of more sustainable solutions to the problems of financing energy needs.

The government and its partners should make sure that the PRSP, integration frameworks of departmental policies, and the policies themselves are founded on principles that place men and women as energy stakeholders at the centre of development and maintain a continuous search for gender balance.

References/Readings

Abeeku Brew Hammond and Anna Crole-Rees, 2004. Améliorer les conditions de vie en milieu rural par l'accès à l'énergie. Une revue de la plateforme multifonctionnelle au Mali

Communication au Gouvernement du Mali, 2005. Ministère de l'Environnement, Compte – rendu du Forum de Ségou de janvier 2005

National Directorate of Energy, 2004. Energy Situation of Mali

PAREHF, 2006. Rapport de synthèse analyse genre des politiques et programmes pour l'élaboration du Cadre Stratégique de Lutte contre la Pauvreté, deuxième génération (PRSP II)

Politique Energétique Nationale (National Energy Policy)

Engendering Nigerian Energy Policy

Chike Chikwendu, Friends of the Environment, Nigeria

This report is based on an examination of Nigeria's sustainable development reports to the United Nations and its National Energy Policy of 2006, with inputs from government officials, energy experts, development planners, women's groups and NGOs.

Despite being the world's eight largest oil producer, and also enjoying a variety of other energy sources, Nigeria's economic and development indicators are very low. Close to 75% of Nigeria's people live below the poverty line, and women constitute a majority of the poor. Therefore, for any development process to attain the goals of eliminating poverty and improving living standards, it must actively involve women. The Nigerian constitution guarantees rights based on equality between men and women, and women play vital societal roles in maintaining their families and households and engaging in productive activities. But there is still evidence of gender discrimination in the customs and application of laws in different parts of the country.

In fulfilling their family responsibilities, and earning income, women primarily use wood for fuel, and have to collect it for themselves. The current Energy Policy in Nigeria follows a traditional approach to energy in development policy and assumes that energy is gender neutral, thus failing to recognise women's particular energy concerns. A more gender-sensitive energy policy would ensure that the needs of both men and women are considered in all planning and policy-making decisions. It would also ensure that all policy-makers are aware of the needs of men and women, and their different roles and responsibilities, and recognise women's energy needs and women's roles in energy provision and use.

Key recommendations:

- *Prompt review of Nigeria's National Energy Policy to consider how to make it gender sensitive.*
- *Increased investment in technological education for women, to enable women to participate more effectively in energy policy and planning processes and occupy positions of influence in energy policy institutions.*
- *Budgetary provisions for capacity building, education and awareness training for all professionals involved in energy planning.*
- *Prioritisation of energy development projects that directly address poverty alleviation and gender equity in their design and involve collaboration with women's stakeholder groups, as well as other development sector ministries.*

Energy and the MDGs in Nigeria

Nigeria has enormous potential to be a great nation. It has a large population of about 125 million, vast areas of fertile agricultural land, a vibrant informal sector and abundant mineral resources. In terms of energy resources, Nigeria is currently the world's eight largest oil producer with daily production of nearly 3 million barrels per day and a reserve of about 30 billion barrels. Coal and lignite reserves are estimated at 2.7 billion tonnes, large-scale hydropower at 10,000MW and biomass potential at 187 million tonnes per year. Solar radiation intensity of up to 1.0KW/m² peak is attainable in some parts of Nigeria and wind energy is available at annual average speeds of between 2.0m/s to 4m/s.

Despite these impressive statistics, Nigeria's economic and social development indicators have always fallen below even the low average of developing countries. Women make up a majority of the 75% of the population living below the poverty line. Gender roles in Nigeria contribute to this situation, as they relegate women to certain sectors of the labour market, usually the non-monetised areas. This in turn has contributed

to the undervaluing of women's work.

Poverty eradication is currently the greatest global challenge and an impediment for achieving sustainable development. Experts agree that concrete measures are required to enable countries, especially the developing ones, to achieve the internationally agreed-on goals contained in the United Nations Millennium Declaration.

The Nigerian government strongly supports the MDGs and is working to achieve them. Based on **Nigeria's Millennium Development Goals Report 2004**, information relating to the country's current status on each goal is presented below:

- **Eradicating Extreme Poverty and Hunger:** In Nigeria, both male and female-headed households experienced rising poverty between 1980 and 1996. Nigeria has developed a poverty reduction strategy which is contained in its National Economic Empowerment and Development Strategy (NEEDS) document.
- **Achieving Universal Primary Education:** Primary school enrolment increased between 1990 and 1994, from 68% to

80%. It then declined to 70% in 1996. Female enrolment is consistently lower than that of males, and the literacy rate among women and girls declined from 44% in 1990 to 41% in 2001.

- **Promoting Gender Equality and Empowering Women:** The ratio of literate females to males in the 15 to 24 years age group increased from 0.89 in 1996 to 0.93 in 2000.
- **Reducing Children's Mortality:** Recent data indicate deterioration since 1990. In 2003, under-five mortality was 217 per 1000. Nigeria's target is to reduce that number to 49 per 1000 in 2015.
- **Improving Maternal Health:** Levels of maternal deaths remain high – 1000 per 100,000 live births in 2001. Challenges include harmful cultural practices and lack of health personnel, especially in rural areas.
- **Combating HIV/AIDS, Malaria and Other Diseases:** About 3.2 to 3.8 million Nigerians were living with HIV/AIDS in 2003. By 2008, deaths from AIDS are expected to reach 4.3 million. The prevalence of malaria increased from 1.1 million in 1990 to 1.9 million in 1998.
- **Ensuring Environmental Sustainability:** Few achievements have been recorded in environmental protection and natural resources management. A rapidly increasing population presents major challenges for sustainability.
- **Developing a Global Partnership for Development:** The high level of Nigeria's indebtedness required debt relief. This was achieved in 2005, with debt relief of \$18 billion from the Paris Club.

Energy and Gender Issues

An increasing number of African countries have established gender agencies and ministries, and gender-sensitivity policies, to raise the profile of gender issues at the national level. An important step towards gender mainstreaming in energy policy in Africa was undertaken in Durban, South Africa when in December 2000, there was an African Ministerial Workshop on Women in Energy. The common theme at that workshop was the dichotomy between women's major role as energy users in Africa and their minimal representation in decision-making and project implementation. Thirty-two African countries, including Nigeria, plus the United States, signed the Durban Declaration on Women in Energy. However, of the ten participants from Nigeria, none was a woman and the impact of this Declaration has not been felt in Nigeria.

The National Assessment Report prepared in 2002 for the World Summit on Sustainable Development stated in its energy section preamble that "Nigeria is endowed with a wide range of both renewable and non-renewable energy resources. Because energy constitutes a major engine driver for development, its sustainable development is imperative for sustainable development." Over time there has also been an increased awareness of the importance of various aspects of energy utilisation, including energy efficiency and conservation in sustainable development.

Some major problems and constraints listed in the National Report included:

- barriers to rural energy, and the need for improvements in access; and
- inadequate national capacity in energy planning and management.

The report listed future plans of action, including efforts to:

- Develop a flexible energy mix and de-emphasise the use of wood as fuel, reducing its contribution to the nation's energy mix by promoting alternative fuels
- Ensure that the nation's energy resources are utilised for a balanced socio-economic development
- Review the national energy policy to include the gender dimensions of rural energy supply and utilisation.

With regard the role of women in society, Nigeria's traditions, customs, and cultural prejudices contribute a great deal to women's lack of equal rights with their male counterparts. Some of these harmful cultural practices need to be jettisoned so that women's rights are respected, and women are treated properly.

Nigeria's energy policies and programmes have generally not been gender sensitive. Information about disaggregated patterns of energy use between men and women in households are not available to decision-makers and planners, largely due to lack of concern and understanding about gender issues. However, it is clear that with regard to household energy, fuel wood is the pivot on which the domestic life and the economic activities of rural Nigerians are based, and that women are the major users of fuel wood. Women use up a lot of physical energy walking long distances searching for ever-depleting supplies of needed fuel wood.

In 2003, Nigeria adopted a National Energy Policy that presents a broad range of recommendations for short, medium and long-term energy actions for sustainable development. This Energy Policy was over twenty years in the making. The policy included recommendations regarding the development of alternative fuels from locally available energy resources, and emphasised the role of private sector participation in the areas of building, maintenance, and refurbishment of energy supply infrastructure. The policy assumed that increased private sector participation would attract new investments, and solve many of the management problems associated with and experienced under public ownership. It thus called for both deregulation and privatisation of vital energy sectors. The National Energy Policy recognised the need for effective coordination of the various energy sub-sectors, as well as the multi-dimensional nature of energy, and addressed diverse options for the optimal utilisation of the nation's resources for sustainable development.

However, the 2003 Nigerian Energy Policy adopted the traditional approach to energy in development by assuming that energy is gender neutral, and thus failed to address women's particular energy needs. There remains a need to devise the type of energy policy that will address the present and the future energy needs of the urban poor, women and children, and rural populations.

Certainly if energy is to play a useful role in meeting the country's development goals, women's issues must be addressed and women included in the development process.

As Thomas Sankara (from Burkino Faso) observed: “To devise development planning without the participation of women is like using four fingers when you have ten”. Men and women have different roles, and different access and control over resources in the household, the community and society in general, and as a result have different energy needs, interests and responsibilities based on their gender.

Five distinct aspects of a gender-aware energy policy

A. Gender Mainstreaming

Gender mainstreaming is the process of ensuring that the concerns and needs of both men and women are considered in all planning and policy making. There has not been gender mainstreaming in the past in Nigeria, including in energy policies, despite the inequalities that lead to women being more affected by lack of access to energy. However, the future is looking more rosy due to an \$8 million allocation to the Nigerian Ministry of Women Affairs in the 2006 budget. These funds will be used to mainstream gender issues into all sectors and MDG plans as they relate to women. The Ministry is also implementing a National Policy Gender Framework to mainstream gender into the national budget planning and to make the Nigerian energy policy gender sensitive. This will be accomplished in the financial year 2007-2008.

B. Participation

Women are generally under-represented at the decision-making level in the energy sector. In Nigeria, the main energy policy formulating body, the Energy Commission of Nigeria, has no woman in its senior management cadre.

C. Recognition

A gender aware energy policy should recognise women's role in energy provision and use. Since women are primary users and suppliers of energy, they should have a say in energy decisions. But even at the household level in Nigeria, women have limited decision-making capacity. This is attributable to the higher earning capability of Nigerian men compared to women.

D. Integrated Energy Planning (IEP)

The physical energy needs of all sectors of the economy must be planned in a coherent fashion. Disjointed policies have been the bane of planners in Nigeria, and the energy sector is a major casualty. For instance, high-technology projects are usually executed without plans for development of local operational and maintenance skills so that Nigerians can take over the projects once expatriates depart. In integrated energy planning, unlike the traditional approach, demand is no longer seen as a market-given obligation determining energy supply planning, with prices as the only mechanism of adjustment. Planning is integrated across sectors and can include a wider range of policy measures to achieve desirable goals. Energy end-use analysis becomes central in integrated energy planning; it involves an investigation into what people are using and why, as well as an analysis of their needs.

E. Gender Disaggregated Data

A gender-aware energy policy should be based on gender-disaggregated data and information on male and female energy use. The fact that women are using and collecting fuel wood for household purposes or for small enterprises is not visible in available statistics, since they are not using energy services provided by government or companies. Women might be interested in energy services like electricity or other forms of energy, but since their patterns of usage are not reflected in statistics, energy planners do not know what women's energy demand is and can therefore not design appropriate energy policies. This requires data sets disaggregated by sex and other social variables. Currently in Nigeria, the Bureau of Statistics is being reorganised to put into place electronic data gathering, storage and retrieval systems. In the future, the Bureau of Statistics may be able to provide Nigerian planners with gender-disaggregated data.

The existing Nigerian Energy Policy does not include these five identified gender-sensitive elements, even though the Nigerian Sustainable Development policy document called for a review to include gender dimensions relating to rural energy supply and utilisation. However, the government is currently reviewing the national Energy Policy with the primary aim of taking gender concerns into consideration. This review will involve extensive consultations with all major stakeholders.

Recommendations for National Level Actions

One of the major energy policy constraints identified in the Nigerian Sustainable Development policy document is inadequate local capacity in energy planning and management. To empower women and engender energy for sustainable development, there needs to be increased investment in local capacity building and technological education, especially for women. Implementing this will enable women to contribute to, and participate more effectively in, energy policy and planning processes and enable more women to occupy positions of influence in such energy policy institutions as the Ministries of Science and Technology, and the Environment, and the Energy Commission of Nigeria. Currently, the position of the Minister of Environment is occupied by a woman, and more such political appointments are needed and should be encouraged.

There is a need to make budgetary provisions for capacity building, education and awareness training for energy planners, in order to change policies, programmes and practices that affect women and limit their energy choices. To engender energy means that all professionals in the energy sector, especially in policy planning, should be made aware of the need to mainstream gender perspectives in all energy planning decisions.

The Nigerian government should give priority to energy development projects that directly address poverty alleviation and gender equity in their design, and ensure appropriate collaboration among energy and other development sector ministries such as those responsible for agriculture, health, industry, and water. When designing projects, energy planners should work with women's stakeholder groups in partnership,

giving priority to organisations that are directly owned and managed by poor people and women.

For funding some of the initiatives enumerated above, the Nigerian government should approach the World Bank Energy Sector Management Programme (ESMAP) Gender Facility for support in implementing strategies for gender mainstreaming in the energy sector.

Conclusion

Gender inequalities result from culturally established differences in the roles and status of men and women in Nigeria. Nigeria needs to explore ways of using new policies to promote safer and healthier energy services and to empower women so they can participate meaningfully in planning for their energy needs. As a starting point for gender-sensitive energy planning, it is important to identify the energy services of primary importance to women and to consider options for providing those services. An engendered Energy Policy should be used for promoting greater equity in the allocation of opportunities and resources.

While women spend an increasing proportion of their time on economic activities outside their homes, they still remain primarily responsible for domestic activities, and the energy required for household uses. As the main actors in the energy economies of rural areas, women, and their energy needs, will have to be addressed specifically if energy and chronic poverty are to be reduced. By incorporating a gender perspective into energy policies and programmes, planners can ensure that women's concerns and experiences, as well as men's, will be adequately addressed.

References/Readings

Federal Republic of Nigeria, 2002. Sustainable Development in Nigeria: 10 Years after Rio (UNCED), National Assessment Report

Federal Republic of Nigeria, 2004. Millennium Development Goals Report

Makan, Amita, 1995. Power for Women and Men: Towards a gendered approach to domestic energy policy and planning in South Africa, TWPR, Vol 17, No. 2



“To devise development planning without the participation of women is like using four fingers when you have ten” (Thomas Sankara, 1987).



Gender and Energy in Senegal: the Paths to Sustainable Development

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Although women's contributions to sustainable development were recognised in Senegal's 2005 Provisional National Development Strategy, and efforts have been made to integrate gender considerations into policies and programmes in various sectors, there are still obstacles to bringing these efforts to fruition. In a 2003 Energy Sector Policy Letter, the Senegal Ministry for Energy cited increased access to energy as a primary objective, but there was no specific reference to gender or the involvement of women in strategic policies. Nevertheless, by placing an emphasis on household energy consumption, widespread availability of butane gas, rural electrification and greater access to modern energy services - with a view to alleviating poverty - Senegal's policies implicitly work towards meeting women's needs.

There is still some way to go, however, before enough appropriate technology is available to meet the energy needs of women. Traditional biomass accounts for more than 70% of household fuel use, and electricity consumption is very low, especially in rural areas. This means that women struggle under heavy workloads that cause gender-based social imbalances and effectively exclude them from many educational opportunities and decision-making processes.

Recently, a strong focus on gender was reflected in the 2006 White Paper drawn up by the Economic Community of West African States (which includes Senegal) on increasing access to energy services for rural and peri-urban populations in connection with the Millennium Development Goals. Advances in mainstreaming women's issues in the energy sector have also been bolstered by ENDA Tiers Monde's Energy, Environment and Development Programme. With support from ENERGIA, ENDA organised a national workshop on gender and energy in Dakar which made specific recommendations for CSD 14 and 15.

Key recommendations:

- *Incorporating a gender and energy approach into the government's Poverty Reduction Strategy Plan and the work of the Multi-sectoral Committee for integrating energy with other sectors to combat poverty (CIMES) so that gender sensitivity is included in the design and implementation of national energy and development policies.*
- *Revisiting the National Strategy for Gender Equality to ensure that it takes sufficient account of women's energy concerns.*
- *Using the launch of the Senegal rural electrification agency (ASER) to raise awareness about the specific energy needs of women and promote technical training for women as operators in the energy sector.*

Background on Energy and Gender in Senegal

The 2004 annual assessment report on the energy sector in Senegal showed that traditional fuels (charcoal and wood) supply over 74% of household energy consumption, while electricity accounts for just 9%. Most of the electricity consumption is in urban areas; there is 56% access in urban areas, compared to just 12.5% in rural areas. Overall, per capita consumption of electricity is extremely low, reflecting the lack of modernisation of the sector and the low level of access to modern energy services. However, the launch of the Senegal rural electrification agency (ASER) should help promote decentralised rural electrification, as well as additional traditional supply lines in rural areas.

The government's programme for the introduction of butane gas, aimed at modernising domestic fuels and preserving woodland resources, has been quite successful. Gas represented 14.5% of household final energy consumption in 2004. However, this success has not been unqualified, since the

butanisation programme has primarily reached only urban and peri-urban households, and has not improved the situation of rural women.

The relationship between gender and energy has primarily been considered in connection with the government's domestic fuel programmes and, in addition to the butanisation programme, there has been considerable progress by virtue of the dissemination of improved stoves, energy-efficient stoves, and experimental alternative fuels.

Key Energy and Gender Issues Identified

A. Mainstreaming gender into the energy sector

The prevalence of traditional fuels in the energy balance has prompted the Senegalese government to initiate substantial programmes aimed at modernising the household energy sector and relieving pressure on the country's woodland resources. In 2004, 74.6% of Senegalese household consump-

tion was of biomass fuels (charcoal and wood), which was an improvement over previous figures. By comparison, in 1981, 93% of household fuel consumption was from biomass.

The reduced use of biomass in the energy balance is partially due to the butanisation policy that the government of Senegal has been committed to since the 1970s. The reason for undertaking this was two-fold: first, to tackle desertification (the effects of which were first felt in the Sahel in 1968) and second, to improve people's living conditions. The use of butane gas for household energy has had tangible positive consequences for women, whose health has been better protected (due to less smoke) and whose chores have become less time-consuming. However, although butanisation seemed to be a perfect programme for integrating gender and energy concerns, so far it has been limited to urban and peri-urban households, failing to address the needs of rural women. Their energy needs are still met almost entirely by wood resources, which are becoming increasingly scarce. As a result, the policy of butanisation has actually exacerbated the dichotomy between rural and urban women and compounded rural women's feelings of exclusion from modernisation.

Beyond butanisation, there are shortcomings in other aspects of the national energy policy. The 2003 Energy Sector Policy Letter makes no mention of women or gender, which suggests that women's energy needs are not considered an 'absolute priority' for the sector. Women, who make up 52% of Senegal's population, are still ignored by many programmes and policies in the energy sector, even though they constitute the group most vulnerable to poverty. That is why there is a pressing need for them to be given access to reliable and affordable energy services, and taken into account in energy strategies and policies.

B. Consequences of energy practices

The government's energy policies result in increased imports of hydrocarbons in order to generate electricity, and do little to address the continued use of traditional biomass by rural households. This situation has economic and environmental impacts, and social consequences, especially for women in rural areas.

Socio-economic consequences. The most critical effect on women is the amount of time and energy their onerous daily chores take up. These chores include grinding cereal, fetching fire wood, drawing water, working the land, making meals, and cleaning up. Women spend 13 to 16 hours every day performing such labour – for which, of course, they are not remunerated. This compounds the social inequality between men and women. In the absence of energy services to facilitate these activities, women remain utterly deprived of independence. They are compelled to call on their daughters for support, which often means girls do not attend school regularly, if at all. The school attendance rate in the Tambacounda region in 2001-02 was 70% for boys and just 53.2% for girls (2003 MDG Report).

In addition, the sheer physicality of their chores exacts a punishing toll on rural women's health, and available health services are generally inadequate. They are exposed to smoke and fumes for long periods because they have to burn wood, cow dung and agricultural residues even though butane gas is widely available in urban areas.

The lack of time and services means women remain removed from decision-making circles and cannot engage in productive activities to earn income. However, this situation is beginning to improve thanks to gender advocacy.

Environmental consequences. The predominance of biomass use by households has damaging effects on the environment. The land's regeneration capacities are hindered by numerous factors, including extensive forest clearing, successive droughts, soil degradation, diminished rainfall and people's unsustainable practices. Some 40,500 ha of woodland are cut down every year to produce 337,500 tonnes of charcoal, most of which is for use in urban areas. Charcoal production is today concentrated in the south and south-east of the country, where the last forest reserves are located. In a bid to preserve these, new measures for using them have been introduced.

PROGEDE, the project for sustainable and participatory management of traditional and alternative energy, covers the area where wood and charcoal are produced. It has devised strategies for managing land in these areas, promoting substitute fuels and helping forestry workers switch to other activities, in order to overcome the country's dependency on wood. Women, however, are completely absent from these arrangements.

Senegal's forest resources have been severely hit by the long periods of drought that have affected the Sahel for more than 30 years. In contrast to the PROGEDE project, forestry programmes and projects developed by the Ministry for the Environment and Protection of Nature via the Direction des Eaux et Forêts (including PREVINOPA, PROBOVIL and the CTL) incorporated a gender and development approach into efforts to address these difficult environmental conditions, actively involving women in managing natural resources and promoting sustainable development.

No gender-specific analysis has been conducted on climate change and pollution, though the impacts of both have heightened women's vulnerability. Deforestation and charcoal production are linked to increased greenhouse gas emissions and releases of carbon dioxide and other pollutants into the outdoor atmosphere. Indoors, the use of biomass fuels in enclosed places causes noxious fumes, which damage the health of women and children since they spend so much of their time near the fire.

Concerns about the gradual disappearance of forests, and the harmful impacts on human health and the environment from inappropriate modes of fuel production are reasons enough to promote and consume less polluting fuels. However, with the exception of butane gas, alternatives (including kerosene, biogas, and solar cookers) have yet to gain a foothold. In order to emulate the success of butanisation, the Senegalese government should adopt a dynamic strategy for promoting these other alternatives, which have great potential.

Senegal has already put in place the CONSERE programme, designed to promote a holistic vision of the environment at an institutional level, and must now ensure that the multilateral environmental agreements are also applied in a way that fosters synergy between them. The environment is, and must remain, the treasure of poor populations and women, which is why strategies for ensuring efficient and sustainable use of it are urgently needed.

C. Gender, energy and MDGs: creating effective links

There has been some integration of gender into policies and programmes in Senegal, but it has not yet become effective in the energy sector. Many of the approaches that have been deployed were designed by development partners, as opposed to being the fruit of a well-planned, integrated state policy. National actors are good at paying lip service, but tangible efforts to mainstream gender considerations into energy planning have not yet been applied across the board.

Gender policy has evolved considerably via the endeavours of the various ministries and departments responsible for women and social development. Until 2001, the PANAF (National action plan on women) was the framework for applying the recommendations that emerged from the Cairo and Beijing conferences. In 2005, Senegal produced a report evaluating progress on the Beijing Platform for Action, and adopted the National Strategy on Equity and Gender Equality (SNEEG). A number of programmes were launched with the goal of alleviating women's workloads, notably the UNCDF project and the PAGF (project for supporting women's groups).

Senegal's **2005 Report to the 49th Session of the UN Commission on the Status of Women** showed that women had benefited from initiatives for the allocation of:

- (i) agricultural processing equipment (millet grinders, rice hullers, oil presses and groundnut grinders);
- (ii) hydraulics equipment (water pumping equipment, bore-well drills, water towers, electric pumps, etc.); and
- (iii) materials for supporting income-generating activities (sewing machines, trolleys and equipment, market-gardening materials). In addition to these initiatives, other partners, such as NGOs, undertook exercises to increase women's access to land, credit and information, build their capacities, and promote their economic activities.

These initiatives helped strengthen women's participation in sustainable development activities. Nevertheless, the initiatives suffered from the lack of specific energy measures, having been deployed without any attempt to integrate them into a wider framework for increasing women's access to modern energy services. It would be useful for future programmes undertaken by the Ministry for Women to be linked with the Ministry for Energy's plans for increasing poor people's access to modern energy services.

Senegal has begun a process of revising its Poverty Reduction Strategy Plan in connection with its efforts to reach the Millennium Development Goals. Energy used to be treated as a separate sector but has now been incorporated into a cross-sectoral outlook, as it has been recognised that energy is indispensable to achieving the MDGs. The analysis of the relationship between gender, energy and the MDGs is based on MDG 3, which deals with promoting gender equality and women's independence. Achieving this goal entails providing access to motive power, electrification and modern cooking fuels. Indicators relating to each of these types of energy services show that better access to them would enable women to devote more of their time and energy to leisure, obtaining information, education and training, engaging in employment

and income-producing enterprises, improving their health, and pursuing other opportunities.

Some of the obstacles identified in the **2003 Senegal MDG Monitoring Report** relate to efforts to increase women's independence:

- Insufficient integration of gender considerations into policies and programmes;
- Inadequate gender-specific data at all levels of activities, which prevents the compilation of indicators;
- Lack of involvement of the private sector and professional associations in the promotion of women;
- Women's low levels of education, training and literacy;
- High maternal mortality and morbidity rates;
- Women and teenager's high exposure to STDs and HIV/AIDS;
- Women's low representation in decision-making bodies;
- The absence of a gender component in each of the MDGs and the lack of corresponding gender-specific indicators.

Opportunities for the future

The political and institutional environment is gradually taking a shape that reflects a more long-term vision. This was begun by the revision of the PRSP, which introduced the Millennium Development Goals. The energy sector and the gender group have already integrated their proposals into the document.

Establishment of the Senegal rural electrification agency (ASER) by the Senegalese government represents a real opportunity for extending electrification in rural areas and implementing multi-sectoral development programmes that better harness women's participation (Senegal National Report on Sustainable Development 2003). Moreover, ASER offers technical and financial support to enterprises and private individuals trying to nurture enterprise in rural areas.

Broadening people's access to energy services goes beyond merely providing electricity. The ASER's strategy aims at increasing the number of multi-sectoral energy projects, amplifying the effects of anti-poverty actions by supplying appropriate energy services. Approximately 40 of these projects have been identified, dealing with dairy production, education and training, health infrastructure, rural and pastoral farming hydraulics, corn growing and rural craftwork. The intention is for women to play prominent roles in the identification of needs and the implementation of these projects. If they are successful, the projects should prove invaluable to the beneficiary communities.

In addition, there is the strategy of achieving rural electrification through local initiatives (ERIL), whereby rural electrification franchises are issued. Women are assigned meaningful roles in these projects. Nevertheless, women's effective involvement in rural enterprises depends on the presence of arrangements favourable to their participation, and the availability of support measures to help them cultivate an entrepreneurial spirit. The idea is to stimulate the proliferation of small enterprises led by women and provide support with: training, organisation, management, identification of markets and partners, and project design. ASER offers women genuine opportuni-

ties, but it is vital that gender awareness be applied at all stages if rural electrification is to serve as a development aid for women throughout the country.

ASER and the Ministry for Women must devise a tangible framework to ensure that the ministry's initiatives aimed at relieving women's workloads and improving their access to important social services form part of a coherent overall strategy.

Recommendations

Recognising women's needs

Given the insufficient integration of gender into the energy sector and the fact that the context is not especially conducive to modernising energy services, a number of provisions must be adopted. These include taking into account women needs and forging multi-actor partnerships.

Women generally have four categories of need: practical, social, productive, and strategic needs. Women's practical needs relate to the management of their family and related activities, particularly cooking, cereal grinding, water fetching, agricultural activities and other daily chores. Their social needs concern health, education, training and transport, all of which can help integrate women into the social fabric. Women also have productive needs that must be met if they are to provide input into economic development. Strategic and political needs must be met if Senegalese women are to be emancipated. Women must be free to take part in decision-making processes, public life, environmental preservation and the decentralisation programmes.

Addressing these needs involves adapting energy and gender policies that are genuinely applied to combating poverty. Energy poverty is insidious and all-embracing, since energy is a factor of development at all levels. Having no energy means having no choice in terms of technology. This reinforces the imbalance between men and women.

Mainstreaming gender considerations

Senegalese ministries have devised a range of national policy documents and local and regional development plans based on cross-cutting strategies such as the PRSP. For an energy sector policy document to successfully mainstream gender considerations into the energy sector, it must promote:

- Accepting the cross-cutting importance of energy in linking efforts to achieve the objectives of the various sectors - while giving priority to gender.
- Instilling gender-energy thinking into planning in the priority development sectors.
- Fostering gender-energy considerations in other strategic sectors, such as health, education, fishing, and small and medium enterprises.

Other energy measures

In addition to embedding a gender-energy dynamic, the following measures must be adopted:

- Strengthening modes of production and consumption of sustainable energy as alternatives to conventional electricity (which cannot satisfy the population's needs).

- Diversifying and modernising the energy supply.
- Increasing the number of integration projects - of which the Multifunctional Platform is a prime example.

Reflections on multi-actor partnerships have been under way in Senegal since 2003, following the ESMAP/World Bank regional consultation session on 'modern energies and poverty reduction'. The baton has since been taken up by the Global Village Energy Partnership (GVEP) and the inter-sectoral committee for implementing synergies between energy and other strategic sectors for the combat against poverty (CIMES).

The CIMES intends to:

- Foster synergies between the energy sector and other strategic sectors,
- Help other sectors to identify their energy needs in terms of alleviating poverty,
- Raise other actors' awareness of the importance of energy to their sectors.

During the national workshop on gender and energy, which was held in advance of the forthcoming CSD session, participants expressed their desire to see gender and energy issues integrated into the CIMES in order to lend it greater visibility and harness the support of all priority sectors. In addition to integrating a gender and energy approach into CIMES, the aim is to ensure that gender and energy are taken into account in the design and elaboration of development policies in general.

Conclusion

The consideration of gender in energy sector programmes and policies is slowly advancing. Yet despite the existence of ministerial structures devoted to the economic and social promotion of women, there is no global view of energy in programmes and projects for both promoting and alleviating women's activities.

However, CIMES (created as a result of the consideration of energy in various national economic and social development sectors) has become a framework for excellence that can lead to the integration of gender and energy. In addition, the multi-sectoral strategy, the institutional reorganisation, as well as the review of the Poverty Reduction Strategy Document, which provides a new vision of energy and gender, are major steps.

The emphasis laid on rural electrification by the Senegalese government, as a driving force behind development for targeted areas and rural population, will contribute to greater access by the rural population to modern energy. This cannot be accomplished without serious consideration of women-specific needs, in order to insure the social and economic welfare of the family. The government strategy developed in the review of the PRSD and consideration of the Millennium Development Goals - in terms of poverty reduction as well as facilitation of the access of poor population to modern energy services - suggest that the political commitment is there for engendering energy. Good practices will be demonstrated through specific programmes and projects, by highlighting the integration of gender in the energy sector and projects involving women.

Gender and Energy in South Africa

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This paper is the product of a gender and energy stakeholder consultation process in South Africa hosted by NovAfrica and supported by ENERGIA. Participants included representatives from government, energy organisations, research institutes, human rights groups, and the New Partnership for Africa's Development (NEPAD).

Despite policy documents in South Africa that place gender issues in a prominent position, programmes and projects lack a real gender focus. A better balance is needed between policies and implementation. There is also still some misunderstanding when 'gender' is mentioned, and it would be useful to have ongoing programmes in place to sensitise government departments, as well as parastatals and energy utilities, and ensure that gender issues are addressed in their programmes and projects, not just as an add-on but in an integrated way.

Current government energy policies focus on improvements in energy efficiency, use of renewable energy technologies, and expanded access to electricity. However, there is more emphasis on providing electricity than on other energy services not met by electricity. Thermal energy needs for cooking, heating water, ironing and space heating, which are primarily linked to the social roles of women, receive less attention and funding than non-thermal energy services traditionally associated with men's roles.

Key recommendations:

- *Prioritisation of cooking energy requirements, or broadly, thermal energy and women's health, particularly for the rural and urban poor*
- *Promotion of energy-saving technologies, especially for micro-enterprises, in areas where most of the poor women are located*
- *Support for public awareness, capacity building and partnership building on gender and energy issues, including men involved in energy, as well as male community members*
- *Integration of gender-related energy issues needs within development goals and plans, including integrated rural sustainable development plans*
- *An increased focus on data requirements, especially information on the impacts of gender-sensitive interventions*

Energy Issues in South Africa

South Africa has large supplies of coal reserves which provide 70 percent of the country's primary energy. South Africa also generates over half the electricity used on the African continent, mostly from coal-powered generating plants. There are also large reserves of uranium, and smaller reserves of crude oil and natural gas. South Africa imports the bulk of its oil requirements.

With regard to renewable energy, there is limited potential for hydropower due to the country's arid terrain. However, there is fairly good potential for development of solar and wind energy. Biomass is a critical energy source for households, especially in rural areas, yet the potential for sustainable use of biomass as fuel is not good, again because of the arid nature of the country. Commercially, energy from biomass is used in the sugar, refining and pulp industries, and there is also some potential for production of biomass fuels, such as ethanol.

In terms of policy, South Africa has one of the most progressive constitutions in the world and an impressive range of policy documents articulating the government's vision for the

development of the country. The 1996 Constitution stated that the government must establish a national energy policy to ensure that energy resources are adequately tapped and equitably delivered to provide for the needs of the nation, and that energy should be made available and affordable to all citizens, irrespective of geographic location. It also stated that the production and distribution of energy should be sustainable and lead to an improvement in the standard of living of citizens.

Before South Africa's *White Paper on Energy* was approved in 1998, the country's energy policy focused heavily on self-reliance and the security of its energy supply. The White Paper on Energy placed more focus on ensuring adequate energy supplies to the large section of the population that had been ignored in previous policies.

In 2004, the Cabinet approved a *White Paper on Renewable Energy*, which set targets for contributions to the energy mix from biomass, solar, and small-scale hydro of about 5% of the current total annual electricity generation. Besides power generation, renewable energy is to be utilised for non-

electric technologies such as solar water heating and biofuels, and the Department of Minerals and Energy has begun a process to look at the rules for a renewable energy market.

However, the government's new Renewable Energy Strategy shows that it has moved away from pro-poor policies towards promotion of commercial renewable energy. In the past, the government's renewable energy actions were focussed on increasing the access of poor communities to energy. Projects implemented in the early 1990s investigated using biogas, commercialising solar cooking, supplying electricity through hybrid systems, implementing energy-efficient low cost housing design, and providing non-grid electrification using solar photovoltaics. With the international shift towards the use of renewable energy for climate change mitigation, the government has changed its priorities from increasing access to energy services to greater investments in large-scale renewable energy projects that will primarily supply electricity to the grid – maximising funding opportunities under the Kyoto Protocol's Clean Development Mechanism (CDM). The Designated National Authority required for the CDM was established within the Department of Minerals and Energy, and a total of 7 projects have been submitted for approval.

In addition, a *National Energy Bill* was introduced in 2004, with provisions for establishment of: a National Energy Advisory Committee; a national Energy Data Base and Information system providing for mandatory collection of energy data by the Department of Minerals and Energy; Integrated Energy Planning capability; a Renewable Energy Programme; an Energy Efficiency Programme; a programme to address household energy access needs; and a national energy research programme.

The *Energy Efficiency Strategy* for South Africa sets a national target for energy efficiency improvements of 12% by 2015. Energy efficiency improvements are expected to be achieved largely through economic and legislative means, including efficiency labels and performance standards, energy management activities and energy audits, as well as the promotion of efficient practices. In an historic Energy Accord between industry, mining and the government, industry players committed to a voluntary target of reducing final energy demand by 15%.

The *Integrated National Electrification Programme* is on track, and has reached its target of connecting 7.5 million households to the national grid. This was an achievement of adding 4 million new household electricity connections since 1994. DME states that universal access to electricity will be achieved within the envisaged 8-year time frame. However, new electricity generation capacity will be required by the end of 2008. A process calling for bids to build a new power station has already commenced.

South Africa's energy policy is shaped not only by internal policies but also by international policies and agreements such as the Johannesburg Plan of Implementation – which resulted in the adoption of poverty reduction and sustainable develop-

ment targets based on the Millennium Development Goals. As one of the government's poverty alleviation initiatives, a pilot study commenced in 2002 on implementation of a free basic electricity (FBE) policy, to determine the most effective and financially viable delivery process. About 490,000 households are currently receiving FBE through Eskom (the national electricity utility) and their municipalities. In addition, the Integrated Energy Centres Programme was established in 2002 as a contribution to the Integrated Sustainable Rural Development Programme. It provides a mechanism for delivering affordable, modern and safe energy, particularly to low-income communities in remote areas. However, despite these initiatives, it seems that the South African government is only marginally pursuing the implementation of pro-poor energy policies, and that adequate resources have not been allocated to address energy poverty within the country.

Future objectives for energy listed in the *Country Report to CSD 14* included: promoting integrated planning across all spheres of government; incorporating lessons learned from Integrated Development Plans (IDPs) and local government experiences with sustainable development into the Integrated Energy Planning process; addressing energy poverty and increased income generation opportunities; focusing on climate change initiatives; addressing restrictive trade barriers and subsidies to reduce constraints on renewable energy product imports; and addressing ongoing dependency on fossil fuels, especially coal.

Constraints and challenges identified in the report included:

- Lack of adequate knowledge, expertise and funding to achieve real impacts;
- Inadequate implementation of Integrated Energy Planning;
- The low price of electricity, which is a serious barrier to the introduction of energy efficiency measures and energy from renewable sources;
- Challenges in displacing paraffin as a household fuel with cleaner fuels such as LPG and bio-ethanol gel;
- The lack of full cost accounting and perverse incentives that hamper the adoption of cleaner fuels and technologies; and
- Basic energy subsidies that don't reach the poorest of the poor.

Key Gender and Energy Issues

The Constitution and the Bill of Rights provide a platform from which to lobby for the empowerment of women in South Africa, and establish that empowering women is an important equity and human rights goal. However, there is a lack of clarity on how gender issues should be addressed through energy policies.

In the South Africa energy sector, the term 'gender' is used in various contexts without adequate clarification of its meaning. There is still misunderstanding when gender is mentioned and it is often equated with "women's lib" and "women trying to put down men." One solution for this would be to ensure that government departments, as well as parastatals dealing with energy issues, such as CEF, Eskom and PetroSA, have

ongoing programmes in place to sensitise staff members, build capacity and to ensure that gender issues are addressed not only in the organisations' composition and institutional models, but also in their programmes and projects.

Thermal energy needs. Research has shown that gender relations and differing gender roles impact on decision-making in terms of fuel and appliance use, acquisition and expenditure (Hooper-Box et al, 1998). For example, men and women spend money differently on fuel and appliances, and many of women's tasks require thermal energy, as illustrated below:

TABLE 1
Thermal and non-thermal energy needs DEMAND / NEED
Domestic thermal: Cooking, ironing, water heating, space heating
Domestic non-thermal: Lighting, entertainment, refrigeration, communication, water pumping
Institutional/Agricultural/Small-business: Welding, sewing, lighting, crafts, refrigeration/freezing, water pumping, traction

Cooking, ironing, and water heating are some of the women's main tasks – in fact, they are often the sole responsibility of women. The procurement and management of energy sources required for these tasks then also falls on women. However, due to relationships of power and control, as well as economic constraints, women don't often have the ability to choose the energy sources they would like to use.

Because energy services requiring thermal energy are viewed as women's jobs, the subject has never been adequately addressed, or appropriate solutions to problems sought. Women in poorer households have little choice and must use whatever fuels are available and affordable, even if they are dirty, dangerous and inconvenient. Even when electricity is available, most households continue to use paraffin, wood or gas for cooking.

The government has addressed thermal energy needs – to some extent – by:

- setting up Integrated Energy Centres to increase access to commercial fuels
- investigating the introduction of gel fuel to replace paraffin
- supporting the solar cooker programme
- investigating increased access to liquefied petroleum gas

However, a lot more effort has been invested in increasing access to electricity. Although women do benefit from electrification, a more balanced approach to energy services is needed, one that more directly takes women's needs and traditional roles into account.

Since a spate of energy baseline studies and household energy consumption investigations in the 1990's, very little new work has been done to investigate low-income household energy consumption patterns and the impact of electrification on energy use patterns. What little information is available is usually extracted from studies that were intended for other purposes and limited in sample size and scope. There is therefore a need to set up a data collection project that can track household energy consumption over a period of time in a variety of locations.

Measures to increase energy access are flawed in a number of ways:

- Households without access to electricity (generally located in rural areas) are not benefiting from the free basic electricity subsidy;
- There is uncertainty about the future of the non-grid programme and subsidies;
- Increasing access to electricity will not alleviate cooking energy shortages since poor households do not use electricity for cooking.

There is an urgent need for the government to concentrate its resources and efforts on programmes and measures that will address thermal energy requirements of women in low-income households, because without that, poverty, health and safety issues and household energy security will not be addressed adequately.

Women in the energy sector. Annecke (2003) provides compelling arguments that South Africa has progressed significantly in addressing gender issues in the energy sector since 1994, culminating in the appointment of a female Minister and Deputy Minister of Minerals and Energy in South Africa. Since 1994, increasing numbers of women have entered the energy sector in decision-making positions, and other important events also occurred, including: the establishment of the Technology for Women in Business (TWIB) award and process to encourage women as entrepreneurs in the energy sector; devotion of the first two days of the African Energy Minister's Conference in 2001 to gender issues; the formation of Women in Oil and Energy South Africa (WOESA) with the aim of facilitating and promoting increased business opportunities and participation for women in the oil and energy sector in South Africa; and other initiatives supported by the Minerals and Energy Education and Training Institute (MEETI) to highlight business opportunities for women in the renewable energy sector.

However, the majority of these initiatives seem to be addressing 'strategic' gender needs regarding the relative status of women and men within society. Very little evidence could be found where 'practical' gender needs related to obtaining better living conditions are being addressed through projects or interventions. It is not clear that poor women using wood fuel in rural areas are better off because of the fact that South Africa had (and still has) a female Minister of Minerals and Energy.

An urgent co-ordinated effort should be launched to adequately monitor and evaluate the impacts of policies, strategies

and implementation programmes. It seems that progress has been made, but what were the actual impacts achieved? For example, how many women entrepreneurs have been established in the energy sector with WOESA's, TWIB or DME's help? How have Eskom's electrification policies changed now that they have employed 21 women engineers in a variety of positions?

Recommendations

- Develop criteria for prioritisation of energy interventions. Some recommended criteria include: (1) changing women's lives for the better; (2) increasing economic opportunities for women; (3) improving service delivery for thermal as well as non-thermal energy; and (4) setting time frames for actions to be completed.
- Prioritise cooking energy requirements, thermal energy and women's health, particularly for the rural and urban poor. Women's access to clean and safe energy sources needs to be improved because poor rural and urban women mostly require thermal energy in the course of their daily tasks. Better energy sources would improve family health by reducing smoke and indoor air pollution and also reduce women's and children's workloads collecting fuel wood.
- Support public awareness, capacity building and partnerships related to gender and energy issues. These should include both men and women involved in energy, as well as grassroots community members who can be empowered to be able to articulate their energy needs and contribute in programmes. Efforts should be made to include men in research efforts on gender issues, as well as planning forums.
- Integrate gender-related energy issues and needs within development goals and plans such as the rural integrated development programme, and stimulate the productive sector in poor rural and urban areas.

There is an urgent need to focus on data requirements. There is very little, if any, information on the impacts of gender-focused interventions. Baseline as well as impact verification data are required.

Conclusion

An overview of current government policies and energy projects reveals an emphasis on electricity provision. A more balanced approach is needed that can address all energy services and not only those supplied by electricity. This is particularly important because energy services requiring thermal energy (such as cooking, heating water, ironing and space heating) are linked to traditional gender roles of women and are receiving less attention and funding than non-thermal energy services traditionally associated with men and men's gender roles. Without adequate attention to women's energy needs, and therefore, thermal energy needs, energy poverty and detrimental impacts of energy use cannot be adequately addressed.

While there is evidence indicating progress, mainly in terms of women's strategic needs, more progress must be made to address women's practical day-to-day needs: "In the last hundred years, some considerable progress in terms of women has been achieved in the energy sector in South Africa; women have emerged as powerful participants and decision-makers in several forums, but the fact that for many women conditions have not improved means there is still a great deal of work to be done" (Annecke, 2003).

References/Readings

Annecke, W, 2003. One Man One Megawatt, One Woman One Candle: Women, Gender and Energy in South Africa. *Energia News*, Volume 6 number 1

Department of Minerals and Energy, 1998. White Paper on Energy Policy for the Republic of South Africa

Hooper-Box, C, K. Mabuse, and W. Ruiters, 1998. A conceptual review and reassessment of South African energy policy research methodology: Towards an expanded framework, Department of Minerals and Energy

Pachauri, S, A. Müller, A. Kemmler, D. Spreng, 2003. Measurement and analysis of energy poverty in Indian households, Centre for Energy Policy and Economics, Zürich

Energy and Gender Issues within Swaziland

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This paper was compiled to provide context for country level discussions and recommendations on gender and energy issues related to sustainable development in Swaziland in preparation for the CSD 14 and 15 meetings in New York. The paper was prepared by the Renewable Energy Association of Swaziland (REASWA) with the help and support of ENERGIA.

Gender impacts significantly on energy issues within Swaziland, although in the existing government policies and strategies this linkage is not usually made. Because the traditional society in Swaziland is patriarchal in nature, women have a generally low status within the country. They suffer from the traditional law systems that exclude women from owning property or land. This in turn makes it particularly difficult for women to access financing in the form of loans. The lack of status of women, particularly in the rural areas where the traditional law and systems predominate, impacts on women's access to energy services and their involvement in energy projects.

Key recommendations:

- *Involve women in energy project design.*
- *Include energy needs assessments within energy policies.*
- *Emphasise income-generating activities within energy service provision.*
- *Help increase women's access to finance, particularly micro-finance.*
- *Encourage women's professional development within the energy sector.*

Background on Swaziland and the CSD

It is usual practice in connection with UN Commission on Sustainable Development meetings for the National CSD Focal Points in each participating nation to submit an official national report outlining the current status and issues in the country for the relevant discussion topics. The Swaziland Environment Authority (SEA) attended previous CSD meetings and the World Summit on Sustainable Development in Johannesburg, and were responsible for submitting national reports. However, the Ministry of Economic Planning is now taking control of CSD issues for the country and the CSD 14 and 15 meetings will therefore be attended by its representatives, as well as officials from the Energy Section of the Ministry of Natural Resources and Energy (MNRE) and the Meteorology Dept of the Ministry of Public Works and Transport. The Ministry of Economic Planning has requested that the Energy Section of MNRE write the official national report relating to energy. This paper has therefore been submitted to the Energy Section so that they can incorporate the ideas presented into their national report.

It is intended that the information contained within this paper, along with discussions generated at the associated consultation event, will be used by those attending the CSD meetings and preparing the official National Report, as well as other stakeholders, to help create greater awareness on the importance of gender issues in energy planning and policies and to lead to greater mainstreaming of gender considerations into energy decision-making.

Energy and Gender in Swaziland

Swaziland can be roughly divided into three user groups when it comes to energy requirements: urban, peri-urban and rural. In the urban areas, the majority of people, particularly in the higher and middle-income brackets, are connected to the central electricity grid. In these homes, electricity is generally used for all energy requirements including cooking, refrigeration, water heating and lighting. Electricity would also be used for space heating in the winter months, although many houses have open fires and therefore wood fuel is still used quite extensively for heating. LPG accounts for a very small percentage of energy supply in Swaziland, predominantly for cooking in the urban areas. In the lower income urban areas and peri-urban areas, fewer households are connected to the electricity grid. Here, both wood fuel and paraffin are used for cooking, lighting and water heating requirements. In rural households, 90% of total energy requirements are met by the use of wood fuel. Total figures for domestic connection to the electricity grid currently stand at 25% (2005) across the country. However, nearly 70% of the population of Swaziland lives in the rural areas, and it is estimated that connection to the grid in these areas is not more than 5-10%.

Other than wood fuel, Swaziland imports nearly all of its energy requirements, including oil, electricity, coal and charcoal. Ninety per cent of this total energy supply is imported from South Africa. Although a high grade, anthracite coal is found and mined within the country, almost all of it is exported to Europe while lower grade bituminous coal is imported from South Africa to meet local demand. Ninety per cent of

Swaziland's electricity supply is imported, mainly from South Africa, but also from Mozambique. The 10% that is generated within country is from hydro resources and a small diesel generation plant. In addition, a considerable amount of electricity and process heat is generated from burning bagasse, however this is all used directly by the sugar industry for their own needs and none of this renewably generated electricity is sold onto the national grid.

The economy of Swaziland is closely linked to and largely dependent on South Africa. Most imports are from South Africa, including all fossil fuels and most of Swaziland's electricity. In the 1980s and early 1990s, Swaziland enjoyed a high growth rate in its economy, largely due to its being one of the most attractive investment climates in the region at that time. However, changes within the region, particularly the political changes in Mozambique and South Africa in the 1990s has left the advantages of investment in Swaziland overshadowed by that of its close neighbours. This, coupled with the effects of HIV/AIDS in the country, has had a significant negative impact on economic growth in the last decade, which in turn has affected people's ability to access energy services.

Gender, particularly in the rural areas of Swaziland, is an important issue when it comes to energy provision. In most cases the women are responsible not only for cooking and heating in the house but also for collection of fuel wood. The significant decline in wood fuel stock that Swaziland suffers from has had a significant negative effect on the lives of most Swazi women and their children, as they are required to spend more and more time securing fuel supplies for the family. The escalating rates of poverty in the country (due in part to the HIV/AIDS epidemic, but also the worsening economic situation) prevent a major fuel switch to LPG, electricity or paraffin in most rural areas, so the pressure on wood fuel reserves is likely to increase and women and children will continue to bear the burden. The responsibility of women to provide domestic energy needs is not only physically demanding but also requires a considerable amount of their time, hence preventing them from pursuing other more beneficial activities. Such a responsibility for wood collection also exposes women to health hazards, snakebites, and threats of assault.

Swazi society is patriarchal in nature and culturally women in Swaziland have a low status, particularly in rural areas where cultural traditions predominate. Certain cultural practices that might be seen to impinge on the equal status of women include: polygamy, where men are permitted a number of wives; the provision of dowries, which can be interpreted as the bride being 'sold' to the husband's family; symbolic periods of mourning where widows can be isolated from society and public office; arranged marriages where younger brides are promised, typically to older men and men of status; and also the practice of 'widow inheritance' whereby a widow can be expected to become the wife of her late husband's brother or other relatives.

In legal terms, the capacity of a woman is reduced once she is married, and she no longer has the right to own land or property. Within traditional practices, women cannot on their own acquire Swazi Nation Land. (A large proportion of land within Swaziland, particularly in rural areas, is Swazi Nation

Land rather than title deed land, handed out through negotiations with local chiefs.) The lack of ownership rights has implications for women in terms of being able to secure loans and finance.

Key Energy and Gender Issues Identified

A. Energy planning and policies; women's participation

In the last ten years, various policy documents and strategies have been developed by the Swaziland Government that have a bearing on energy and gender issues within the country. Of particular note are the Utilisation of Renewable Energy Action Plan 1997, The Energy Policy 2003 and the more recent Poverty Reduction Strategy and Action Plan 2005. The key points in these documents that have a bearing on gender and energy issues are mentioned below:

The Utilisation of Renewable Energy Action Plan

The action plan was introduced in 1997 and developed by the Commonwealth Secretariat in collaboration with the Ministry of Natural Resources and Energy. The plan identified a number of actions that were thought appropriate to the country and that MNRE might be in a position to implement. Although gender issues and the needs/involvement of women were not mentioned within the plan, a number of the potential actions would have a direct effect on women's energy needs, particularly within the rural areas. These included: electrification of homesteads using solar PV systems; developing commercial cooking fuel distribution; and improving the efficiency of biomass cook stoves. The implementation of these actions has been compromised by lack of funding, however many of the actions have now been incorporated into the new Energy Policy.

The Energy Policy 2003

The National Energy Policy was developed as a consultative process by the energy section of the Ministry of Natural Resources and Energy, and was passed by the Cabinet in 2003. The overall aim of the policy is to improve the accessibility of energy to all households at affordable prices. An emphasis is placed on sustainability and environmental concerns and a number of the specific policy statements outlined in the policy relate to promoting the use of renewable and sustainable forms of energy, particularly in the rural areas.

Government policy statements that are likely to have a bearing on women, particularly in the lower income sector, include commitments to:

- Ensure the participatory establishment of multipurpose woodlots and individual tree growing so as to increase rural wood fuel supply
- Promote the development and dissemination of improved cooking technology as part of a wider strategy on the reduction of wood fuel consumption
- Explore suitable alternatives to wood fuel, such as LPG, paraffin, electricity, wood fuel briquettes and solar cookers
- Encourage the use of credit schemes for energy projects for rural households

- Facilitate adoption of sustainable energy options in an effort to assist low-income households.

- Promote access to affordable energy services for low income groups.

Additional policy statements that specifically relate to promoting the participation of women include commitments to ensure that women are motivated to participate in energy programmes and activities and promote greater enrolment of women in energy related disciplines.

The Poverty Reduction Strategy and Action Plan (PRSAP)

The PRSAP has been developed principally by the Ministry of Economic Planning and Development, through a comprehensive consultation process. The document was released in draft form in 2005 and is currently being validated through various consultations. In its final form, once passed through the Cabinet, the document can be adopted as official policy.

The PRSAP includes comprehensive sections on both gender and energy, although the two areas are not covered as a combined issue. In relation to energy, the PRSAP states as its goal: “to ensure that all citizens of the country, more particularly the poor, have access to affordable, safe, sustainable, secure and environmentally friendly sources of energy especially for cooking and warmth, and for empowering them to start SMEs.” The general goals of the strategy are therefore in line with the existing Energy Policy. The strategy goes on to list particular programmes, projects and actions, which include the establishment of community woodlots, expanding access to the rural electrification programme and promoting the use of renewable energy.

Under gender equality, the goal of the PRSAP is “to ensure gender equality and afford people of all genders, particularly women and other disadvantaged groups, equal access to social services and increased opportunity to utilise factors of production of the improvement of their livelihoods.”

As detailed above, there are a number of national policy documents and strategies within Swaziland that are supportive of developing the energy sector in the country in a sustainable way. There is much support on a policy level for renewable energy and energy efficiency initiatives. In general, there is less mention of energy specifically in relation to gender-based issues, although the PRSAP and the Energy Policy acknowledge the importance of women’s participation in policy making.

Although the National Policies are in principle conducive to helping to achieve the MDGs, the challenge will be in the implementation of the desired actions. A particular issue identified in relation to the Energy Policy is that a detailed implementation plan is required, and for this to happen the appropriate funding is also necessary. To date the Energy Section of MNRE has been able to address some of the policy statements within the Energy Policy, however in general the significant decrease in donor funding in Swaziland over recent years and the lack of funding within the government itself has had a negative impact on the ability to focus on sustainable energy projects in the country.

B. Efficient use of energy in the household sector

In the early 1990s, the government initiated a community woodlot pilot project that concentrated on areas with high fuel wood shortages, with the intention of serving as a first step towards a countrywide woodlot programme. The pilot programme was focused on one community and women were major players in the implementation of the project, in that they were responsible for fencing and the planting of seedlings. Swazi National Land was used for the tree planting, with the permission of the local chief. Technically the project was a success in that the trees grew well. However, the success of the planting meant that the woodlots, created for the production of wood fuel, became attractive for other purposes, particularly for use in construction as more highly valued timber and poles. The lack of clarity of ownership and user rights resulted in disagreements over benefits and revenue sharing. Even though women were much involved in the implementation process, they were soon left aside once the trees matured and only the chief and his headmen benefited. This was mainly due to the fact that women were not involved in decision-making and project planning and did not have any ownership rights over the land.

In the late 1990s the government initiated a programme on fuel-efficient stoves. The majority of rural households still cook on an open fire with low end-use efficiency, while many higher income rural and peri-urban households tend to use wood in a coal stove which requires even more wood than an open fire. The fuel efficiency stove programme was designed to reduce the amount of fuel consumed when cooking and subsequently relieve rural women of the burden of frequent wood fuel collection. The programme started with a stakeholder consultation where different types of fuel-efficient stoves and cookers were on display and this was followed by the dissemination of a number of stoves. However only a few households benefited from the programme as there was a lack of funds from the government to buy and disseminate more stoves. The lack of access to micro-finance by women in the country also limited the sustainability of the programme.

C. Access to electricity and energy services

Over the last five years there has been a large programme within Swaziland to increase access to electricity in the rural areas through the Rural Electrification Programme. The programme began in 2001 and has been mainly funded by the Government of Taiwan. The main focus of the programme has been the installation of 11kV high voltage lines to reach rural schools and other government institutions. It was proposed that the local residents in the targeted areas would then be able to benefit by making their own connections. For the first phase of the programme MNRE developed selection criteria to identify the priority areas. These consisted of: (i) the presence of a public institution (usually school) and (ii) interest from the local community (based on numbers of applications received for grid connections). Various issues were identified after the first phase, which targeted 70 institutions, had been completed. Vandalism and theft of equipment, particularly copper conducting cable proved to be a problem. In addition, very few domestic customers were connected. Therefore, for phases 2

and 3 of the programme, low voltage lines were no longer taken to potential residential customers, however high voltage lines were routed to the schools to go through areas of maximum potential in terms of density of residential customers. During the 2nd and 3rd phases a further 100 institutions, mainly schools, were connected. Further phases of connections are continuing, the final phases of which will be funded directly by the Swaziland Government.

A majority of rural schools in Swaziland have now been electrified; this benefits both the students and the teachers, especially where the surrounding teacher's housing has also been connected. Proportions of male to female students are roughly equal in Swaziland, particularly in primary schools. The teaching profession is also well represented by women.

One of the principal issues encountered by the Swaziland Electricity Board (SEB), however, is the unexpectedly low connection rate among rural households. SEB has identified cost as the main barrier to connection. Various funds have been identified to help subsidise the cost of connection, bringing costs down to 3,000 E per household in certain circumstances. However, the cost of wiring a house is an additional barrier. SEB is looking into the provision of 'smart boxes', which are in effect distribution boards that include a light and a number of power sockets. This will substantially cut down the cost of wiring for an initial, basic connection. Road shows have also been held in each area surrounding the newly connected institutions to try and promote residential connections. The many female-headed households in the rural areas tend to be the poorest and are therefore in a weak position when it comes to accessing the opportunities that electrification of their homes might bring.

D. Reform of the energy sector

At present, the Swaziland Electricity Board (SEB) controls all generation, transmission and supply of electricity. As part of the Energy Policy this is set to change. An independent regulatory authority is to be set up and SEB is to be privatised. The Acts relating to this transition have been passed by Parliament and currently await signature at the King's Office.

In principle, the restructuring of the energy supply industry in Swaziland should open up more opportunities for small scale, renewable power generation. There is an opportunity for supplying rural and peri-urban communities from mini-grids using sustainably generated electricity, and possibly the potential to set up energy service companies (ESCOs). This could provide opportunities for the lower income, female headed households that have not been in a position to benefit from SEB's Rural Electrification programme.

E. Financing

The issue of access to finance to enable lower income households to access energy services is a significant issue within Swaziland, disproportionately affecting women and female-headed households. In 1998, a programme was initiated within the country that did to some extent recognise and try to address this issue. With funding from the World Bank,

MNRE embarked on a programme to try and develop the private PV market within the country. A local solar company was offered a substantial loan to enable it to offer solar home systems to buyers on credit. Even with a credit facility, it proved to be beyond the financial limits of most buyers to afford medium scale solar home systems, though the sale of very small, 14Wp systems, proved to be relatively successful. Offering any form of credit system for a private solar company, however, proved in the long run to be too much of a financial and administrative burden.

The project therefore sought the support of local banks to offer small loan facilities to potential solar system clients. Only one bank showed any kind of interest, but it maintained its strict screening criteria and most potential customers were not able to get credit approval or offer any security. Other financing schemes were also considered, including those that had policies of offering micro credit. However these institutions were only prepared to offer loans for productive income-generating activities and so were not willing to offer loans for solar home systems alone.

Access to finance for energy services is likely to be of particular importance for women in the lower income brackets in Swaziland. Accessing finance is an issue for all in lower income, rural areas but women suffer disproportionately due to cultural practices and the traditional system. For example it is not permitted for married or widowed women to own property or land, making it virtually impossible for them to offer security on any form of loan.

F. Capacity building

Currently there are no capacity building programmes specifically tailored for women and energy issues in the country. According to the Energy Section of MNRE, training only takes place during the project implementation process, where both men and women are subjected to the same training package. However, the department highlighted that they strongly encourage women to participate in training programmes either locally or internationally. The department also pointed out that in the past a number of women (from their and other departments) were trained in energy efficiency, but unfortunately all of them are no longer working within those departments. This is a major drawback in most sectors in Swaziland as most people do not stay in one job very long and this has affected continuity and development within government departments.

Recommendations for National-Level Actions

1. Involve women in energy project design and implementation

To some extent this recommendation is already covered within the existing Swaziland Energy Policy. As women are the primary users of household energy and energy equipment in Swaziland, they need to be involved in the projects that are intended to meet their needs. To date women may have been involved in general community meetings for project implementation, but they have not been specifically targeted. Providing technical training for women specifically in the operation and maintenance of energy equipment (for example

within a solar PV programme) will help women gain new skills as well as help to ensure the longer term sustainability of a programme, since the principal users of the equipment will be in a position to ensure its upkeep.

If women could be targeted for educational programmes on energy options and technologies, they would then be in a position to contribute to finding and implementing energy solutions that are most likely to be successful within a community. It is likely that at present many women, particularly in the lower income, rural areas are unaware of technologies and energy options that could potentially offer them benefits.

2. Conduct energy needs assessments for setting energy-related policies

Currently, there are policies within the country, including the Energy Policy, which are supportive of the promotion of sustainable forms of energy and the participation of women within project implementation. To help facilitate more of a demand-side approach to energy policy rather than just focusing on supply, it would be useful to carry out needs assessments, particularly in the rural areas, and particularly focusing on women's energy requirements and the needs for energy that could relate to the smaller-scale production activities that tend to be found in rural areas.

3. Incorporate income-generating opportunities into energy service provision

The discussion of the rural electrification programme earlier in this report pointed out that the majority of rural households cannot afford access to electricity or energy equipment. This is likely to be particularly relevant to female-headed households that are on average poorer than their male-headed counterparts. Trying to link energy service provision to income generation could be a step towards addressing this issue. While targeting areas and households for energy service provision it would be possible to take into account potential value added productive activities. This could include business training and market development approaches specifically targeted at women.

4. Increase women's access to financing and credit

Women are particularly restricted in terms of accessing credit for income generating activities and for energy supply or equipment. Even for relatively small loans, most banks and money lending facilities have strict criteria in terms of credit ratings and being able to secure the loans. With restrictions that women have in Swaziland for owning land and assets this is a particular problem. In addition, those organisations that do consider smaller loans to women do so for direct income generating projects only, not to cover the up-front capital costs of providing renewable energy equipment or connection to the electricity grid. Addressing the credit issues that women face and helping to set up financing schemes that promote the use of small scale renewable energy generation could make a significant impact on addressing women's energy needs sustainably.

5. Encourage women's professional development in the energy sector

In general in Swaziland, as in most of the world, women are under-represented in the energy sector, particularly in decision-making roles. Encouraging the promotion and training of suitably qualified women within the energy sector, both in government and the private sector, would help to ensure that women's needs are better addressed at all levels.

Conclusion

Gender has an important bearing in Swaziland in terms of the sustainable provision of energy, and therefore in terms of meeting the Millennium Development Goals. Women in the country take primary responsibility for cooking and heating provision in the home. In rural areas, where 70% of the population resides, women are also responsible for the energy supply to homes in the form of wood fuel collection.

There are existing government policies within the country that are supportive of sustainable energy development. There are also policies that try to address the issue of women's low status, particularly within the traditional structures of the country. However, in general, the two themes are not linked and to date the involvement of women has not been specifically addressed in terms of energy provision. There have been a number of projects in the past decade that have tried to address the provision of energy to rural areas. These include the development and supply of fuel efficient stoves, various solar electrification projects, the development of sustainable wood lots and the nationwide rural electrification programme. A key issue in the majority of these projects has been access to financing. This is a particular issue for women in Swaziland as their lack of rights in terms of ownership and access to land makes it difficult for them to secure any form of loan. Some success stories exist in terms of sustainable energy supply, for example the Mphapati Solar Village. The success of this project can mainly be attributed to the full involvement of the community, including the women within the project planning and implementation.

With the past successes and failures of energy projects in the country in mind, the following country-specific recommendations have been made to help address energy provision and therefore meet Millennium Development Goals in the country:

- Involve women in energy project design
- Include energy needs assessments within energy policies
- Include income-generating activities within energy service provision
- Help increase women's access to finance, particularly micro-finance.

References/Readings

Commonwealth Secretariat, 1997. Swaziland Utilisation of Renewable Energy, Action Plan

Francis, Amy, 2005. Experience with Community Based PV Projects in Swaziland, Report for Shell, Renewable Energy Association of Swaziland

Lasschuit, Westra, and Rejinders, 1994. Rural Household Energy Strategies in Swaziland, University of Amsterdam

Mathunjwa, 1999. Energy and Women: National Consultation for Swaziland, The Renewable Energy Association of Swaziland

Ministry of Agriculture and Cooperatives, 2002. National Forest Policy

Ministry of Economic Planning and Development, 2005. Draft Poverty Reduction Strategy and Action Plan, Poverty Reduction Task Force

Ministry of Home Affairs, National Gender Policy

Ministry of Natural Resources and Energy, 2003. National Energy Policy

Renewable Energy Association of Swaziland, 2004. Energy Needs of Orphans and Vulnerable Children in Swaziland, Report for British High Commission

Renewable Energy Association of Swaziland, 2004. Review of Mphapati Solar Village Project

Swaziland Electricity Board, 2005. Rural Electrification, Presentation to Honourable MPs

United Nations Country Team, 2003. Millennium Development Goals, Swaziland Country Report 2003



“If women could be targeted for educational programmes on energy options and technologies, they would then be in a position to contribute to finding and implementing energy solutions that are most likely to be successful within a community.”



Gender, Poverty and Energy in Implementing Sustainable Development in Uganda

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This report was prepared under the coordination of the Uganda Chapter of the East African Energy Technology Development Network (EAETDN-Uganda) in preparation for the meetings of the UN Commission on Sustainable Development on energy, climate change and industrial development. The report is intended to create greater awareness concerning the importance of gender issues in energy planning and policies. It identifies and discusses the actions that have been taken in Uganda, presenting lessons from experience, as well as constraints and challenges.

Biomass supplies over 90% of the energy used in Uganda. Although the country is richly endowed with renewable energy resources, access to electricity is very limited. Uganda's government has undertaken a ten year multi-pronged rural electrification programme to increase access to modern energy services in the rural areas.

Uganda's government recognises the gender dimensions of poverty and is working to redress gender inequalities. Uganda also has strong women's organisations that have been involved in energy consultations. As a result, there has been an increased focus on women as users of energy when decisions are made on extending the electricity grid system, developing renewable energy resources to supply power through decentralised grid systems, or using solar PV or improved biomass technologies to supply remote homesteads, schools and health facilities. When beneficial results can be shown as a result of these efforts to make gender a priority concern in energy decision-making, then mainstreaming of gender considerations will be more generally accepted both nationally and internationally.

Key Recommendations:

- *Expanding good governance that takes into consideration the different needs of women and men*
- *Undertaking financial mobilisation for gender responsive actions that promote increased energy access*
- *Building capacities among civil society organisations and NGOs to mainstream gender in energy and sustainable development*
- *Strengthening the country's institutional capacity for environmental management and enforcement.*

Energy situation in Uganda

Adequate and reliable sources of energy are critically needed for economic growth, sustainable development and achievement of the Millennium Development Goals. However, expanding access to energy, particularly in the rural areas, is a major challenge. Uganda's domestic energy potential includes hydrological resources, solar and wind capacity, and large quantities of fuel wood and non-woody biomass, such as agricultural residues. There is also potential for geothermal energy in the western sector of the East African Rift System.

In terms of electricity generation, Uganda has an installed capacity of 400MW, with substantial reliance on hydroelectric power, and 80MW of fossil-based thermal generation. Electrical energy demand has been increasing at a rate of 7-9%, from 270MW in 2001 to 345MW in 2005; it is expected to increase at a comparable rate in the next 10 years. Peak demand is in the order of 380MW, but because of the low water level in Lake Victoria the country is experiencing daily electricity shortages, with generation capacity falling to a total

of 185MW. This has negatively affected economic growth and created obvious hardships in terms of meeting household energy requirements.

Biomass, including firewood, charcoal, and crop residues, plays a very significant role in Uganda's energy supply, contributing approximately 92% of the total energy consumed in the country. It provides almost all the energy used to meet basic energy needs for cooking and water heating in rural (and most urban) households, institutions, and commercial buildings. In rural areas, biomass is also the main source of energy for industries. Limited availability of electricity and high prices of petroleum products constitute barriers to a reduction in the demand for biomass. In terms of trade, biomass contributes about US \$20 million to the rural economy and employs over 200,000 people.

Per capita consumption of biomass is 680 Kg/yr. Total household demand for firewood and wood for charcoal is 22.2 million tonnes per year, with cottage industries adding a further 5.5 million tonnes of demand, for a total of about 27.7

million tonnes for the entire country. There is a lot of wastage, however, since most of the conversion devices for cooking are highly inefficient.

Substantial investments in power generation and improving energy efficiency and conservation are urgently required in Uganda. However, there are barriers which have prevented wide-spread investments in the energy sector. These are currently being addressed through government energy policy changes, particularly the government's Renewable Energy Policy, which promotes investments in the development and adoption of technologies that can expand access to modern energy services.

Women's situation in Uganda

As in other societies, gender inequalities exist in Uganda, and the economic role of women has largely gone unrecognised. In terms of influence in the energy sector, women are under-represented in scientific and technical subjects in education that would have enabled them to make a contribution to energy technology development. However, Uganda has a relatively long history of women organising to solve their problems, typically in community-based groups. These have been strong mobilising and communication channels for consultations on energy issues and involvement of women in energy decision-making.

In 1986, the National Resistance Movement (NRM) government began trying to redress gender inequalities in ways that would support women's contributions to developing the Ugandan economy. NRM policies aimed at strengthening the position of women in the economy by raising the value and productivity of their labour and by giving them access to and control over productive resources. A legal and institutional framework for promotion of women's rights was put in place, and national institutions for gender and development and advancement of women were created in 1988. The Ministry of Gender, Labour and Social Development provided the National Gender Policy which guides sector planning, such as the energy policy, on key strategies for addressing gender responsive strategies and actions. In 1995, the new Constitution established a new framework of rights in which specific attention was given to the status of women.

The revision of the Poverty Eradication Action Plan in 2004 helped to focus attention on the gender dimensions of poverty, and viewed gender concerns as key elements for social, economic and technological development. Participatory Poverty Assessments were undertaken, which indicated that women have less power and heavier workloads than men. Specific actions identified to address gender inequalities included increasing women's access to land, energy, safe water and sanitation.

With regard to energy, although energy services such as lighting, heating, cooking, motive power, mechanical transport and telecommunication are essential for the work done by both women and men, their needs are often very different. The difference in needs is due to the variety in the tasks undertaken by women and men, and this must be taken into account in energy decision-making.

Government Energy Targets and Policies

Besides reaffirming the Millennium Development Goals (MDGs) adopted in 2000, governments at the 2002 World Summit on Sustainable Development (WSSD) also set new targets under MDG 7 on environmental sustainability ('MDG Plus'), including targets on increasing the share of renewable energy in total energy supplies, and providing 35% of African households with modern energy within 20 years. After the WSSD Summit and the subsequent Bonn Conference on Renewable Energy, Uganda set up its own energy-related targets. (See Table 1 below.)

TABLE 1
Uganda's energy-related MDG targets

MDG target	Selected Options
1. Use of improved stoves and modern fuels by 50% of households.	<ul style="list-style-type: none"> ■ Improved wood stoves ■ Improved charcoal stoves ■ Increased production of biomass through energy farming
2. Modern energy services for all urban and peri-urban poor	<ul style="list-style-type: none"> ■ LPG distribution in urban areas ■ Grid connection.
3. Electricity for services and motive power for communities	<ul style="list-style-type: none"> ■ Mini-hydro for community and productive uses, water pumping

In order to increase access to modern energy services in the rural areas, the government of Uganda is implementing a ten year multi-pronged rural electrification programme. It involves extension of the electricity grid system, development of renewable energy resources to supply power through decentralised grid systems, improved biomass technologies, and the use of solar PV to supply electricity to remote homesteads, schools and health centres. With regard to remote households, women are recognised to be the major users of energy.

The government's Renewable Energy Policy has set up strategies to ensure that women play a special role in the provision and management of energy resources, since they are the ones most affected by inadequate energy supplies. The purpose of this policy is to promote investments in Uganda that will support the development of a cost effective and environmentally sustainable energy supply, especially for the rural areas where modern energy is largely unavailable. It supplements the government's Energy Policy, developed by the Ministry of Energy and Mineral Development in 2002.

Main government achievements:

- The government has designed a rural electrification strategy and plan, set up a rural electrification fund, and liberalised the energy sector in Uganda.
- Government projects involve women in energy project planning and implementation, although women are considered more as users than implementers and technicians.
- The renewable energy policy has involved gender-responsive planning processes and content development.

Challenges and constraints

In drawing up the programmes for increased energy access, recognition was taken of the barriers preventing steady growth for renewable energy resources for power production and thermal utilisation in Uganda and other developing countries. These barriers were identified and strategies put in place to dislodge them.

The barriers include:

- Limited technical and institutional capacity within the country for energy technologies, which require high levels of training and local entrepreneurship. There is low participation of women as technicians and entrepreneurs within the energy sector.
- High up-front costs which discourage use of renewable energy technologies by low income groups.
- An underdeveloped market for renewables arising from low availability and consumer attitudes.
- Inadequate levels of awareness among stakeholders, especially women, on availability and economic benefits of various energy types.
- Lack of standards and quality assurance which leads to production of substandard products and low adoption rates.
- Inadequate legal and institutional frameworks to implement policies and strategies on development of renewable energy and mainstreaming of gender in policy planning.
- Lack of appropriate financing mechanisms for the huge investments required.
- Unnecessary opposition to the development of big hydro potential that is the cheapest energy source available.

Lessons and the way forward

In view of the challenges listed above, the government has decided to continue undertaking programmes to promote energy efficiency, and to increase biomass production through energy farming. Furthermore, efforts are being made to continue developing renewable energy technologies and their markets. In terms of policy, additional review of energy policies and plans is being planned, as well as formulation of sub-sector policies, plans and strategies. Establishment of independent power producers and public-private partnership projects are also being promoted.

Impact of Sustainable Development Policies in Uganda

The main challenge in reducing poverty through economic growth is overcoming the barriers that stand in the way of increased access to modern energy. But social and economic development is sustainable only when the natural environment is taken care of. Clean, modern energy sources raise rural incomes by permitting the introduction of new technologies and services, and also reduce levels of land degradation and air pollution from using wood and other biomass fuels.

In many cases, women are the primary beneficiaries of environmental protections that are meant to prevent deforestation and land degradation, due to their primary responsibility for fuel collection and management of biomass resources. Over the last two decades, the government of Uganda has formulated a variety of policies and laws meant to enhance environmental conservation, including protections for water, land,

forestry resources, fisheries, wetlands and wildlife. The government further decentralised environmental management under the Local Government Act 1997 and created space for the participation of civil society organisations, NGOs (including women's groups) and the private sector, with continued support from donors. The establishment of the Collaborative Forestry Management programme that involves communities is a wonderful example of efforts made by the government through the National Forestry Authority, and CARE International in Uganda. This effort has not only enabled communities to participate in planning for forestry management but also involved women in thinking about innovative ways of utilising forest resources in a sustainable way.

However, the benefits from increased environment management have sometimes been outweighed by inconsistencies, unpredictability and contradictions in government policy and implementation. In the 1980s and early 1990s, for example, the government strongly supported evictions of encroachers in Mabira Forest Reserve and Kibale Game Corridor. Women, who used the area to gather fuel wood and food, suffered the most. More recently, nomadic pastoralists were evicted from the wetlands in Teso, even though the government has in other cases allowed land in forest reserves to be used for sugar and palm oil plantations.

Encouragement of commercial plantation enterprises may be related to Uganda's efforts to diversify its portfolio of exports and reduce its trade dependence on coffee. Overall, government resources for sustainable development are limited because domestic revenue is low: donor funding accounts for about 55% of the total national budget, and more than 85% of the development budget. Non-government groups play an important role in pushing for concrete action and holding leaders accountable for their promises, but they may face additional barriers to their continued participation in sustainable development activities due to the structural shift by development assistance partners from stand-alone projects to national budget support. This makes future funding uncertain for non-government organisations currently implementing projects, and puts them in a weaker position to question the government or hold it accountable.

Recommendations for National Action

It is clear that the introduction of efficient, renewable energy technologies can have positive impacts on gender, poverty reduction and improvement of the environment, as well as development. It is also important to note that improved efficiency in biomass consumption can help address climate change by conserving forests that act as carbon sinks, and that sustainable biomass production and consumption can offer a carbon-neutral source of energy. However, much more effort is needed in order to increase energy access, address the challenges of climate change, eliminate indoor air pollution and use energy more efficiently for sustainable industrial development.

Some of the initiatives to be undertaken include: mobilisation of financial resources for gender responsive actions that promote increased energy access; increased political will and good governance that takes into consideration the different

needs of women and men; strengthening of institutional capacity for environmental management and enforcement; and elimination of social-cultural barriers and strengthening of capacities among CSOs and NGOs to mainstream gender in energy and sustainable development.

The main challenge for Uganda, and the East African region in general, is to scale up existing programmes to achieve accelerated provision of modern energy services by:

- Accelerating the use of modern fuels for 50% of those who are at present using traditional biomass for cooking;
- Increasing access to reliable modern energy services for all urban and peri-urban poor;
- Providing electricity services such as lighting, refrigeration, information and communication technology and water treatment and supply, for all schools, clinics, hospitals and community centres; and
- Expanding access to mechanical power within the East African Community for productive uses.

As part of the East African Community, Uganda's government and stakeholders should:

- Be committed to developing a strategy for accelerated provision of sustainable modern energy services to the rural, urban and peri-urban poor, to meet the MDGs (including the one on gender equality) and improve the livelihoods of men and women.
- Set targets, strategies and investment programmes for energy access to meet the MDGs.
- Set up policies, legal frameworks and regulations, including technical standards and fiscal incentives.
- Ensure that gender is mainstreamed in energy access activities and undertake appropriate strategic environmental assessments of energy access options.
- Undertake massive awareness efforts to encourage a progressive shift from traditional fuels and energy technologies to modern energy services.
- Monitor, evaluate and report on progress of energy access activities to meet the MDGs.
- Facilitate adoption of best practices in modern energy technologies and services.
- Mainstream energy access issues into national policy, planning and budget frameworks.

PROGRAMMES	CUMULATIVE TARGETS		
	2006	2011	2016
<i>Modern Energy Services for Households</i>			
Improved woodstoves	100,000	400,000	1,000,000
Improved charcoal stoves	30,000	100,000	250,000
Institutional stoves	450	1,500	5,000
Baking ovens	60	250	1,000
Kilns (lime, charcoal, brick...)	10	30	100
Solar home systems (kWp)	200	400	700
<i>Power Generation based on Renewable Energy</i>			
Hydropower plants (large) (MW installed)	380	580	780
Hydropower plants (mini and micro) (MW installed)	5	50	100
Cogeneration (MW installed)	7	14	50
Geothermal (MW installed)	0	50	100
<i>Expanding Electricity access in Rural Areas</i>			
Electrified households through PREPS/LIREPS and CIREPS	384,000	745,000	1,135,000
<i>Energy Efficiency and Biofuels</i>			
Solar water heaters (m2 installed)	2,000	6,000	30,000
Energy savers	10,000	50,000	120,000
Industrial energy audits implemented	30	70	300
Energy efficient equipment for industries implemented	15	50	250
Biofuels (Ethanol, Biodiesel) (m3/a)	0	3,000	10,000

Conclusion

Uganda has publicly demonstrated a commitment to sustainable development, especially in terms of energy access. While that is the case, the continued degradation of the natural capital on which its people (and particularly women) depend in the fight against poverty is enough evidence to suggest that still much more needs to be done.

With regard to the energy sector, substantial investments in power generation, energy efficiency and conservation, are urgently required. There are barriers which have prevented widespread investments in the sector and progress is being made in addressing those barriers through policy changes, especially the development of the Renewable Energy Policy.

This report emphasises the importance of policies and programmes in Uganda that aim to provide beneficial results for women as well as men. These government actions are important for sustainable energy in the country, since such beneficial results can only be obtained if gender is made a priority concern within energy decision-making.

References/Readings

Ministry of Energy and Mineral Development. National Energy Policy

Ministry of Finance, Planning and Economic Development, 2004. Poverty Eradication Action Plan 2004/5 – 2007/8, www.finance.go.ug

Ministry of Gender, Labour and Social Development, 2005. Revised National Gender Policy

The Sustainability Watch Network – A Southern Civil Society Network www.suswatch.org

Uganda Coalition for Sustainable Development, 2005. Uganda Sustainability Watch Report, National Implementation barriers to sustainable development

UNDP, 2005. Uganda Human Development Report, Linking Environment to Development: A Deliberate Choice



“The government’s Renewable Energy Policy has set up strategies to ensure that women play a special role in the provision and management of energy resources, since they are the ones most affected by inadequate energy supplies.

The purpose of this policy is to promote investments in Uganda that will support the development of a cost-effective and environmentally sustainable energy supply, especially for the rural areas where modern energy is largely unavailable.”



Gender, Energy and Development in Zambia

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This paper discusses the energy situation in Zambia and the linkages between gender, energy and development. The paper is based on stakeholder consultations organised by the Zambia Gender and Energy Network (ZGEN) in connection with preparations for the CSD meetings on energy, and also on the country's experiences with gender and energy issues. ZGEN is currently hosted by the Department of Energy (DOE) of the Ministry of Energy and Water Development of the Republic of Zambia, and is affiliated with ENERGIA.

Although Zambia has substantial natural resources, they have not been adequately harnessed to provide modern energy services. Almost 80% of the people lack access to electricity, and wood fuel (mostly supplied by women) is the major source of energy for households and small enterprises.

Zambia faces challenges in working towards meeting the Millennium Development Goals, including gender equity targets, as well as the Southern African Development Community (SADC) commitment to achieve at least 30% women's representation in decision-making. Some general attempts have been made to mainstream gender in government decision-making by the Ministry of Gender Affairs, but so far there has been little progress in mainstreaming gender into Zambia's energy policies and implementation programmes. The country is currently revising its 1994 National Energy Policy in order to take into account new and emerging issues, including gender considerations.

Key recommendations:

- *Identify women's energy needs and the means to provide for them. This is in line with promoting affirmative action, since women are the most disadvantaged in terms of energy access.*
- *Ensure sufficient representation of women at decision-making levels and in key positions to ensure gender balanced development.*
- *Identify innovative financing mechanisms to increase energy access, especially in the rural areas.*

Energy Use in Zambia

Zambia is well endowed with energy resources except for petroleum, all of which is imported. Indigenous energy sources include wood fuel (firewood and charcoal), electricity (mainly hydro powered), coal, and renewable energy sources such as solar, wind, geothermal and mini hydropower. There is substantial potential for utilising untapped indigenous energy sources, but lack of the financial resources necessary for capital investments is a limiting factor.

Despite Zambia's rich energy resource base, only about 20% of its population has access to electricity. Electricity, petroleum and coal are mainly used for commercial purposes. Wood fuel is the dominant source of energy in Zambia, accounting for more than 80% of the country's total energy supply. Most households use wood for fuel, and its usage has increased over the years. In the rural areas, only 2% of the people have access to electricity and only 1% use electricity for cooking and lighting. This situation is what makes gender issues so critical in the energy sector, because women are at the centre of the country's energy supply issues.

Zambia's energy use has risen sharply over the years, with total annual consumption currently estimated at 10.8 million tonnes of oil equivalent (TOE) per annum, as compared to 4.7 million TOE in 2000 and 4.4 TOE in 1990. Per capita energy

consumption has also risen from 22.5 Giga Joules (GJ) in 1990 to 42 GJ in 2003. This increased use of energy is attributed to increased economic activity. However, the percentage of the population using solid biomass fuels has remained high, at 80% of total energy use.

Key Energy and Gender Issues Identified

A. Consequences of present trends in energy uses on women

As is the case in many other developing countries, wood, agricultural residues and other biomass fuels are likely to remain the major source of energy for households and micro enterprises for a long time. Reliance on these traditional fuels is directly linked to poverty. In 2004, the percentage of poor people in Zambia was 68%, among which 53% were extremely poor. Extreme poverty is also more prevalent among female-headed households than poor male-headed households. Poorer households are less able to switch to cleaner forms of energy, and their continuing reliance on biomass creates a vicious cycle of poverty.

Women in Zambia, as in most societies, are responsible for domestic chores, including cooking, fetching water, cleaning the home and taking care of the children. In rural and peri-urban areas, they are also responsible for obtaining the energy

resources required to undertake these tasks – which involves gathering firewood.

Although it has been used for cooking and light from time immemorial, firewood has now become scarce in most areas, which imposes great burdens on women. They have been known to spend most of the day in search of firewood, and yet this is only one of their many tasks. Collection of water, too, can take up a great deal of women's time. The search for firewood poses risks to women ranging from snakebites to assault and rape, and carrying it back home is physically draining, especially for women whose food consumption is much less than the daily recommendation. Most importantly, collection of firewood robs women of time that could be spent on productive activities.

The use of biomass also causes indoor pollution, which in turn causes respiratory infections and eye problems. Where energy is scarce, nutrition and hygiene are affected and any adverse effects, such as illness, further overburden the women, making it very difficult to have any time to engage in income-generating activities. Yet it is income-generation activities that provide hope for these women to break the yoke of poverty. As a country we cannot talk about poverty alleviation if the majority of the people in our rural areas are stuck in this vortex. Poverty reduction can come from the energy sector by freeing up time for these women to engage in income-generating activities. It also entails providing women with cleaner and more efficient energy sources to enhance their productivity.

B. Overview of National Energy and Gender Policies

The 1994 National Energy Policy is Zambia's working document on energy, and it is currently being reviewed. It was formulated with very little participation or representation of women. The National Gender Policy was not enacted until 2000, and issues of gender were not prominent before then. The energy policy, therefore, made only very feeble and superficial attempts to incorporate gender issues.

The primary incorporation of gender issues in the 1994 National Energy Policy was achieved through the insertion of phrases such as 'including women'. No gender analysis was undertaken in order to identify the differing needs of men and women in energy sub-sectors such as coal, petroleum, electricity, and renewable sources. It was only in the wood fuel sector, and in particular in the development of improved cook stoves and the management of forest reserves, that the roles of women were recognised. There was no situational analysis, which is a key determinant in devising the most effective interventions for promoting development through provision of energy. As a result, most programmes were gender blind and made very insignificant attempts to address gender imbalances in the energy sector. It was business as usual, which some scholars characterised as 'the MAD (Men and Development) approach'.

Six years later came the National Gender Policy, which contained policy measures for each sector that should, ideally, have addressed gender imbalances. However, the Gender and Development Division, which drafted the policies, was not in charge of their implementation, and therefore there was really no guarantee that the policy measures would not just remain

on paper. After an analysis of the effectiveness of the gender and energy policy framework in Zambia, a recommendation was made that the National Gender Policy and the National Energy Policy should be harmonised. This way the Department of Energy would have a gender sensitive policy and the Gender in Development Division could provide guidance and monitoring to ensure that the policy measures were being implemented. Only then would the mainstreaming of gender in the energy sector become a reality.

The revised National Energy Policy, which is still in draft form, has incorporated gender issues. It also discusses household energy in detail, ensuring that women's needs are in that sector are addressed. It represents a great improvement over the previous document and for the future promises to provide more gender-balanced development in the energy sector.

C. Gender imbalances in the implementation of energy projects

In terms of programmes and activities, the Department of Energy has collaborated with non-governmental organisations working on the development and dissemination of improved cook stoves, but these interventions have been insufficient as they were undertaken only at the micro level and not the macro level. Under one of the major energy programmes, the Rural Electrification Programme, there were no deliberate policies or measures to ensure that vulnerable groups (including women) would be able to use electricity to improve their economic status.

The Energy Service Company (ESCO) pilot project, one of the programmes under the Renewable Unit of the Department of Energy, provided private companies with equipment to provide solar home systems at a fee to a few residents in the Lundazi, Chipata and Nyimba districts in the Eastern Province. Most of the beneficiaries of the project were male heads of households, who didn't even consider placing one of the four lights powered by the system in the kitchen to provide light for women's work there. Thus, without any requirement for attention to women's needs, women's benefits were minimal even though modern energy had been provided for the household. Also, very few women were enlisted as customers. For example, out of the first 100 solar home systems installed, only 13 went to women. Nevertheless, because demand for the systems exceeded the supply, the project was considered successful. There was no questioning about why women, who normally are the ones who collect and use firewood with very little assistance from men, participated so minimally in the project.

There was one commendable project under the Township Electrification programme, which was the Pamodzi Low Cost Electrification Scheme. Under this scheme, households were supplied with an electric iron and two-plate cooker, which definitely lightened the women's tasks of cooking and ironing. Most importantly, payment of electrical connection fees was staggered over time, recognising the low incomes of the participants. Such innovative financing mechanisms are essential when it comes to increasing access to modern forms of energy for economically disadvantaged men and women.

In 2005, the Ministry of Energy and Water Development

embarked on a Rural Electrification programme which provided solar energy for Chief's palaces and rural schools in areas where grid extension would not be viable in the near future. This programme is part of a general government initiative to provide modern energy services to places without electricity. Out of the 182 solar home systems that were installed, however, only about 10% of the beneficiaries were female.

Another recent energy programme involved the introduction of pre-paid metering for electricity by the National Utility Company in most parts of Lusaka, the capital city. Most households under this scheme have stopped using electricity for cooking food that takes a long time to cook for fear that they may end up having to pay more. The result is they are going back to using charcoal, which is considered to be cheap and economical to use. Is there any hope for these Zambian women?

D. Challenges in the energy sector

The energy sector is unlike other sectors such as education, health and agriculture where the gender imbalances were relatively easy to identify and address, so that progress has already been made. In the education sector, for example, there has been affirmative action to help girls move on to higher levels of education. Pregnant girls have also been given a chance to complete their education. In the health sector, progress has been made on identifying which diseases affect men or women more, and how certain diseases affect men and women differently. Hence, it was easy to devise policies and programmes to mitigate these situations.

Energy is more complex because it is an input. Having energy is not an end itself, but is necessary for productive purposes. Therefore, an integrated development approach is needed with regard to energy. Every sector needs energy, and because of that it should be a priority area.

Another problem is that people question why gender issues should arise. It is very easy to assume that once some form of energy has been provided, both men and women will benefit equally. Yet this is generally not the case. To reach an understanding of this, it is necessary for people to become sensitised to gender and energy connections, and then examine differing energy needs and determine how these can be met both practically and equitably. There is also need for gender disaggregated data which will reflect women's patterns of energy usage. This will enable energy planners to know what women's energy demands are and therefore design appropriate energy policies.

Recommendations for national action

- Identify women's energy needs and the means to provide for them. This is in line with promoting affirmative action since women are the most disadvantaged in terms of energy access.
- Ensure sufficient representation of women at decision-making levels and in key positions to ensure gender balanced development.
- Identify innovative financing mechanisms to increase energy access, especially in the rural areas.

- Promote local manufacture of energy equipment components through the use of existing technology research institutions.

- Provide tax incentives for importers of energy equipment targeted at increasing energy access under the poverty reduction programmes.

- Rural energy enterprises should be exempted from taxes or pay less tax than those in the urban areas.

- The Department of Energy should work with the Central Statistics Office to come up with gender disaggregated data, as this will form the basis for making comprehensive plans for both men's and women's energy needs.

- Prioritise energy development projects which will address poverty alleviation and gender equity in their design.

- Encourage linkages between individuals and organisations in gender and energy (such as within ZGEN and others) by creating common platforms.

- Media should be proactive in disseminating information on energy and gender.

- Increase gender analytical skills among stakeholders in order to assist them develop and implement gender sensitive programmes.

Zambia's Gender and Energy Network

The Zambia Gender and Energy Network (ZGEN) represents one of the strategies that can provide hope for the gender and energy situation in Zambia. ZGEN is an initiative of various stakeholders in Zambia interested in the linkages between gender and energy. The network was established in 2004 and is currently hosted by the Department of Energy (DOE) of the Ministry of Energy and Water Development. ZGEN is supported by and affiliated with ENERGIA, the international network on gender and energy.

The overall objective of ZGEN is to engender energy policy and empower women (as a less advantaged group) to play an active role in energy planning and decision-making through the promotion of information exchange, training, research, advocacy and actions aimed at strengthening the role of women in sustainable energy development. One of the most important specific objectives is to facilitate energy switches from traditional to cleaner forms of energy.

Already the network has initiated some activities. The first is a household energy survey in low-income townships in Lusaka, which will provide a basis for future programmes to improve the energy situation in these areas. However, as was clear from the national consultative workshop to prepare for CSD 15, Zambia still has a long way in achieving the MDGs, and even most of the participants at the stakeholders' consultation were not very much aware of the process for implementing the MDGs, or the work of the UN Commission on Sustainable Development. Hence the need for more sensitisation regarding energy, gender and the MDGs.

Social and Economic Impacts of Energy Deregulation in Zimbabwe

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This paper considers the progress Zimbabwe is making in addressing issues related to energy poverty, as part of its sustainable development strategy. 'Energy poverty' is defined here to mean the absence of sufficient choice in accessing adequate, affordable, reliable and safe energy services to support economic and human development. The close linkages between energy, poverty and gender are analysed, and recommendations made for ensuring that poverty and gender concerns are addressed in plans for improving access to energy services in the country, especially in connection with the current national energy policy revision process.

In Zimbabwe, women suffer the most from energy poverty because they are responsible for supplying their families with food, fuel, and water, currently against a backdrop of deteriorating energy supply infrastructure and skyrocketing prices. To reach development objectives in such a setting, including achievement of the Millennium Development Goals, emphasis must be placed on increasing access to sustainable and affordable energy sources. Although everyone needs energy, lack of energy for household needs and small-scale enterprises limits women's ability to take care of their families and themselves, pursue higher levels of education, earn income, and participate in social and community affairs.

The energy sector in Zimbabwe is currently undergoing deregulation, which has serious impacts on poor people's access to energy services for their households, livelihoods and small-scale informal industries. Poor households have been pushed out of the formally controlled systems into parallel and informal markets where prices are extremely high, reflecting the shortages of all products, and the premium charged where it is illegal to collect firewood from dwindling wood resources, especially around major urban centres. Land reform and the urban clean up campaign have also affected the supply systems for energy and livelihoods of the poor households.

The paper was drawn from discussions at a consultative workshop on the national CSD report supported by ENERGIA and linked with the Department of Energy's National Process for the CSD 14. An essential component of the paper and consultative process in its development has been the rekindling of a network of energy professionals and institutions to debate the current energy crisis in Zimbabwe. The final workshop got a commitment from stakeholders to form a joint multi-stakeholder policy lobby group to act as the main interface with government in the revision of the national energy policy scheduled to be concluded by December 2006.

Key recommendations:

- *Formulate a National Energy Policy and Strategy to guide government operations, and address gender issues identified in the consultation process*
- *Institute cost reflective tariffs for electricity*
- *Inject funds into the Rural Electrification Fund*
- *Fund income-generating projects in both rural and urban areas*
- *Encourage and fund research in renewable energy for rural areas.*

Energy, Economic and Gender Issues

The energy situation in Zimbabwe has undergone its most turbulent period during the last five years. In this period the country has experienced widespread shortages of all commercial energy forms and yet paradoxically increased the reach of the national grid by a considerable proportion.

The energy sector has reflected the sharp economic downturn that the country has experienced over the 5 years. Shortages of foreign currency have generally resulted in erratic fuel supplies, with long queues becoming the order of the day. The poor are bearing the brunt of the shortages.

Transportation costs have shot up, but with a corresponding nose dive in the availability of service. Poor people in both urban and rural areas are walking long distances for their daily

livelihood activities such as going to work, going to the market and seeking health and other services. Women, in particular, have suffered abuse at the hands of unscrupulous operators who demand sexual favours in return for transport to and from work. Although not statistically proven, there are reported cases of increases in domestic violence as men become suspicious of their wives when they arrive home late due to transportation difficulties. Men are usually able to physically pressure their way in when there is limited transportation available.

As a short term measure the government has deregulated the supply of petroleum products and removed some subsidies that were targeted at poor households. The result has been a skyrocketing of the price of paraffin beyond the reach of many poor urban families who depend on it for their cooking and

lighting needs. Perhaps the worst tragedy for the fuel sector has been the insistence of government on providing subsidised diesel fuel for new farmers in a bid to stimulate agricultural production. The subsidies were heavily abused, as farmers would buy diesel at Z\$6500/litre and sell it off on the parallel market for up to Z\$100,000/ litre. The abuse led to the removal of the facility, but six months too late.

The last five years have also seen a turbulent land reform process that has generally been blamed for the wider economic meltdown. About 300,000 households have been resettled on formerly white-owned commercial farms in an attempt to redress a skewed land ownership structure that kept landless people entrenched in poverty. Rural families have been moved into areas that previously served 4500 white farmers and their labourers. Infrastructure services in these areas are inadequate to cope with the influx of new farmers and their families. Schools, roads, water, energy and health infrastructure are all inadequate to serve the resettled population. The situation was not helped by the three consecutive seasons of below-normal rainfall that followed in 2002, 2003 and 2004. As a result, resettled farmers resorted to harvesting firewood for sale to an urban market that is booming, in light of the petroleum and electricity shortages.

The price of electricity has been held at an unrealistically low level for the past five years and this has had two major impacts. First, the national electricity utility (ZESA) has been running huge deficits which the government has to cover year in and year out. Secondly, below-market interest rates have resulted in the stalling of the deregulation and privatisation of the electricity sector. Private equity has largely shunned the sector due to the high level of government involvement in pricing policies, keeping the price way below the actual cost of supplying the customers.

Patterns of energy generation, distribution and utilisation affect women and men differently.

More than 80% of the women in Zimbabwe live in the rural areas. (The remaining 20% are divided between the urban and peri-urban areas.) In many cases, women stay in the rural areas while the men drift to urban areas in search of formal employment. Illiteracy, economic dependency and prevailing social norms prevent women and girls from combating societal discrimination. All Human Development Reports since 1998 have shown that the Human Development Index for men was higher than that for women.

Women and girls in Zimbabwe often are disadvantaged in terms of income opportunities, especially in specialised sectors of the economy, due to gender entry barriers. Women's employment opportunities have been limited to ad-hoc cross border trading, seasonal farming and vegetable vending, which barely sustain their needs.

Unlike their western counterparts, women in Zimbabwe and Africa in general have a direct involvement in energy generation, transformation and use. They obtain their own energy and convert it to usable final forms. Traditionally, women are expected to prepare meals, fetch water and ensure the health and safety of the family, especially the children. There are still many stereotypes with regard to the roles and abilities of

women. Affirmative action measures, in particular in the areas of education, employment and political participation and decision-making, have been introduced, but sex role stereotypes continue to affect the attitudes of many Zimbabweans. The literacy levels for women have improved significantly, though this is beginning to be reversed by the current harsh economic environment and the impacts of HIV/AIDS, which has left many children-headed households with no economic means to pay for education. The girl child is often sacrificed when financial resources for education get squeezed.

Key Energy and Gender Issues Identified

Lack of access to energy

The declining energy infrastructure and lack of energy for household needs and small-scale enterprises, as well as the uncertainty created by the clean up campaign, has eroded women's ability to take care of their families and themselves, or improve their lives.

Without convenient, affordable fuels for cooking and heating, women spend large amounts of time and physical energy obtaining traditional biomass fuels. At the same time women, in rural areas are engaged in subsistence agriculture to feed their families. Shortages of commercial energy forms like diesel fuel, and the persistent power cuts, have resulted in more women resorting to traditional agro-processing techniques with their associated drudgery and increase in the physical tasks undertaken by women.

The repeated droughts have also shifted agricultural activity to small-scale gardens as a key source of household food security. However, these are manually irrigated and demand more time and physical exertion. The government, through a Chinese commodity aid package, has been promoting the use of irrigation as part of rural electrification. Small-scale pumps have been distributed in recently-electrified areas to improve the load factor as well as to stimulate agricultural and economic activity, but the necessary electricity is not always available.

Indoor air pollution as a major problem.

As the supply and availability of all commercial energy forms deteriorates, more households from both poor and middle income households have had to turn to fuel wood for cooking in urban areas. This is often done in makeshift stoves of very low efficiency. Consequently, there has been a surge in the price of fuel wood from traditional informal suppliers, which has resulted in the poorer households resorting to burning domestic waste for energy, especially for cooking. This includes plastics, chemically treated paper and sometimes rubber products. These materials are high in toxins and carcinogens. Working over these highly polluted indoor fires exposes women to smoky conditions that cause respiratory and other illnesses.

Motorised equipment needed for grinding, pumping, agriculture, and transportation.

The shortages of petroleum products have resulted in both urban and rural communities resorting to walking over long distances, quite often with heavy head loads. This especially

affects women, who in most cases have to carry young children with them (on their backs) as well as their other loads.

The land reform programme that offered some hope to rural small-scale farmers was complemented by an irrigation development programme that was subsidised by the government. Some of the schemes depend on grid electricity or diesel pumps. Due to the erratic nature of the fuel and electricity supply, women have reverted to manual and physically straining irrigating and harvesting crops, grinding grains and processing staple foods, hauling water for household, agricultural and commercial uses, and transporting goods and materials.

Enabling women's voices to be heard in decision-making.

Women are currently under-represented in energy policy making positions, and generally still face constraints in decision-making process at all levels of social organisation, whether it be in national and local government or in their homes and workplaces. Although having more women in positions of political power may not guarantee that the energy concerns of women living in poverty become national priorities, there has been enough improvement in the number of women in political positions to be able to make a difference. For the first time the country now has a female Vice President, and the last election saw positive efforts by political parties to field female candidates. The proportion of women in Parliament is now 23%.

The Ministry of Gender and Cooperatives is also developing a series of strategies to increase the participation of women in decision-making processes across a broad socio-economic spectrum. NGOs such as the Zimbabwe Women's Bureau and the Zimbabwe Women's Resource Centre and Network have also made significant efforts to bring the voices of women into major national processes and decisions, such as the feedback and input into the national budget.

The wider NGO community is also involved in ensuring greater participation and control of local development initiatives by women. Practical Action Southern Africa has been incorporating a gender awareness training workshop as mandatory for all its energy work. The result has been a high percentage of women leading community energy and irrigation projects. Out of the 9 irrigation projects, 6 are led by women and women make up 65% of the project leadership overall, increasing the likelihood that women as well as men will benefit from the projects. The use and utility of participatory approaches has generally been embraced and practiced to different levels by the majority of the development agencies in the country. There are occasional setbacks induced by short-term relief interventions that have disregarded this approach in their quest to reach high numbers in the shortest possible time. These have tended to favour men, who are more politically connected and have greater access to information.

Empowering women to become entrepreneurs

Until the late 1990s, women were involved as vendors of energy products and services. This has been rapidly declining with more men becoming central players in the trade of energy services. There are two reasons for this. First, because of the widespread and chronic nature of the shortages, much of the

trade in energy services has shifted from the formal market into the extralegal 'parallel' market where the risk of arrest and loss is very high, which does not naturally suit women. The second reason is that the recent clampdown by government on informal settlements and informal business activity inflicted heavy losses for women, the majority of who were informal traders of a variety of wares – not just energy products but also vegetables, clothing and electronic gadgets.

Energy products alone have generally not provided enough business for women in the informal sector but were often part of a product mix that included other high volume and quick margin products such as clothing.

Government policies

As alluded to earlier, Zimbabwe does not have an endorsed comprehensive national energy policy but operates with ad-hoc changes to sub-sector policies. The pricing policies currently applied to electricity and petroleum products can best be described as 'populist' with very little relationship to the real costs of providing energy services. Private sector participation is still dominated by short-term interests and high uncertainty due to the frequent but unpredictable policy directives that are issued from time to time. Examples of this unpredictability can be found in the petroleum sector, where access to and sales of fuel in foreign currency offered hope through a reprieve/concession by the central bank. However, it was later scrapped because the governmental authorities had the perception that the system promoted speculation, as people held on to fuel coupons as a way of maintaining the value of local currency earnings.

The low proportion of women employed in the energy sector, as well as their marginal involvement in planning and decision-making, are illustrative of the gender inequality and inequity related to energy. While the proportion of women in the energy sector has started to rise in recent years, the sector is still dominated by men, particularly in the technical areas. Women in the energy industry work mainly in administration, sales, finance, catering and personnel. The energy sector has a highly masculine image. This is known to be a significant barrier to female participation.

Women's roles as caregivers have been further amplified by the high HIV/AIDS prevalence rates in the country. As the virus takes its toll on the population and more patients require care at the same time as the health services sector is declining, the government is actively encouraging home based care of infected people. Good hygiene and a warm environment are essential in maintaining the health of HIV/AIDS infected people. Women are spending a lot of time in fetching water and firewood to maintain the cleanliness and comfort of family members that are infected, be they husbands, sons or even grandchildren.

These additional responsibilities place additional burdens on women, impacting their ability to work outside the home and to deal with the effects generated by the harsh economic environment.

Recommendations for National Level Actions

The following recommendations are meant to address the issues identified above. They are based on the inputs from the stakeholders' workshop as well as from interviews conducted as part of this exercise.

A. Policy, Regulation and Institutional Arrangements

National Energy Policy and Strategy

■ *The Ministry of Energy and Power Development should draw up a National Energy Policy and Strategy to guide all decisions and programmes in the energy sector.*

The Ministry highlighted that a national policy formulation process will soon be underway. Stakeholders agreed to contribute to a robust policy that would cover emergencies and aim at mitigating their negative impacts. It was argued that the severity of the energy crisis in Zimbabwe was exacerbated by the lack of such a policy and strategy.

■ *The policy formulation process should be as inclusive as possible, allowing affected women and low-income groups to input their needs and expectations.*

There should be meaningful consultations of all the major stakeholders. Government should go into these consultations with an open mind, receptive of ideas from the affected groups. Such an approach would hopefully minimise instances wherein programmes for the poor (e.g. subsidies) are drawn up without their views and without the benefit of their experiences.

■ *The National Energy Policy should have a balance between the rural and urban areas.*

Because the rural population relies mostly on non-commercial energy for which statistics are not readily available, there is a tendency to give pacifying statements about 'focus on rural areas' without actually giving any concrete commitments to the issues affecting rural areas. Stakeholders emphasised the need for a detailed policy and strategy to address rural energy access.

■ *Policy should be based on and backed by researched facts to be implementable.*

The National Energy Policy (NEP) should be comprehensive and holistic, incorporating aspects like environment, gender, research, technology and social considerations.

■ *Government should create an enabling environment that promotes the adoption of renewable energy technologies. This could include such measures as:*

- Removal of duties and taxes on renewable energy technology hardware
- Appropriate pricing of commercial energy which removes all unnecessary subsidies
- Supporting research and development in renewable energy.

Mechanisms for Policy Monitoring and Implementation

■ Government and stakeholders should put in place mech-

anisms to monitor the implementation of policies and to take the necessary corrective action when there is deviation.

■ Make ethics a strong component of energy system governance. The abuses of the various facilities the government had put in place to alleviate the negative impact of fuel shortages reflect badly on those in charge. Fundamental business ethics, including honesty and the avoidance of corrupt practices are essential.

Market Reforms and Appropriate Regulation

■ *The agenda for reform needs to be clear, well co-ordinated and implemented within a reasonable timeframe in order to lower the transition costs.*

There are disparities in the pace of reform in the major energy sub-sectors. In the electricity sub-sector, the relevant legislation (the Electricity Act and the Rural Electrification Fund Act) have been passed by Parliament and the relevant implementing bodies (the Zimbabwe Electricity Regulatory Commission (ZERC) and the Rural Electrification Agency) are already operational. In the petroleum sub-sector, all the reforms are being done without the supporting legislation. In the petroleum sub-sector, the government sets prices as the regulator. In the electricity sub-sector, ZERC is the regulator and determines electricity tariffs.

B. Energy Carriers, Technology and Research

Research Priorities

■ While research should be carried out on all energy technologies, priority should be given to those promising technologies that address the energy needs of the low-income rural population, the majority of whom are women, with a view to make the technology user-friendly and inexpensive. Gender aspects of technology should be covered by the research.

■ To be able to influence the direction of research in the country the government should fund and commission specific and targeted research to address priority areas. This way, the research coming out of research institutions would be immediately relevant and would address the country's problems.

Dissemination of Results

■ Efforts should be made to disseminate research results to all interested stakeholders through technology fairs and energy forums.

■ Education on gender, energy and poverty should be advanced through public information. This could be done through the development of a national energy information system, which would make available key information on the various energy, gender and poverty related activities by the government and other players like research institutions. A web site could be developed to this end.

Indigenous Knowledge and Experiences

■ Research and technology transfer should fully recognise and exploit indigenous knowledge and the people's own experiences. The local people have coping mechanisms, which could benefit modern research if carefully tapped.

Funding for Research, Development and Deployment

■ Government should increase funding for research and development, pilot projects and dissemination of research results. Mechanisms should also be put in place to encourage private sector funding for research.

Diversity of Energy Supplies

■ Keep all energy options open and reduce over-dependence on one source. The current crisis caused by shortage of paraffin has been made worse by over-dependence on the fuel for cooking and lighting. As part of the reform agenda, the government should have identified, developed and promoted or popularised other fuels: ethanol gel, LPG, etc. Biodiesel is now being promoted as a panic reaction to the diesel shortage.

C. Financing Mechanisms and Subsidies

■ Any subsidies should be targeted and the implementation should be monitored to ensure that the subsidies reach only the intended beneficiary. Subsidies should also be for a specific time. In the absence of such mechanisms there should be no subsidies at all, as experience has shown that they can be a drain on the government's finances without any benefits accruing to the intended group.

■ Subsidies should not be introduced when a commodity is in short supply. The chances for abuse then is higher.

■ Government should work together with micro-finance organisations to assist low-income groups, especially women, to access finance for income-generating activities such as irrigation, welding, etc, in order to raise their standard of living. Government money could be better utilised this way than through generalised subsidies.

■ A holistic and co-ordinated approach should be taken to development in order to give a 'total package' for a given community. Energy infrastructure cannot function in isolation. There is a need to plan and provide for support services such as a good road network, and urban services such as regularised plans to promote investment.

■ End user prices must reflect costs. Energy of any sort is not a social, free public good. End user prices are a key parameter driving energy consumption. Unless such prices reflect long-term marginal costs (variable, maintenance and capital expansion costs), including wherever possible the cost of well-identified externalities like energy security or environmental protection, they will distort individual behaviour. Removing subsidies and cross-subsidies should be a priority.

■ Promote greater energy efficiency. Energy intensity is a directly related to price signals whereas energy efficiency depends more the diffusion of the most cost-effective technologies. The introduction of minimum legal standards in energy equipment and service is critical. In the electricity sub-sector, the presence of metering equipment is important. The

use of load limiters in some high-density areas is not conducive to saving energy.

■ Foster financing partnerships linked to environmental goals. In the context of climate change mitigation (especially the Kyoto Protocol), industrialised countries are encouraged to invest in developing country projects under the 'Clean Development Mechanism (CDM). Under the CDM, Zimbabwe could gain benefits for the rural areas through the development of renewable energy projects, which are the most promising. In urban areas, the most promising projects under CDM include solar water heaters, timer switches and industrial energy conservation.

■ Ensure affordable energy for the poor. Economic and social policies aimed at equitable income distribution are the most effective means of helping the poor. Such policies also contribute to economic growth of the country as a whole.

To make energy affordable for the poor, the government should accept responsibility to:

- Absorb the cost of part or all of energy infrastructure needed to serve the poor.
- Favour decentralised renewable energy systems to accelerate access to modern energy services.
- Promote local energy enterprises by training managers and other personnel, technically and commercially, to run the different aspects of the business, including local maintenance.

D. Increasing access to electricity in rural areas.

■ It is recommended that the government launch a programme to assist rural communities and households to connect up, and to access equipment like irrigation pipes and pumps, grinding mills and welding machines so that they can engage in income-generating projects. This will assist the households to pay for use of the electricity. The Electricity End Use Infrastructure Development started by the Rural Electrification Agency is a good starting point.

■ There is need for a massive injection of funding into the Rural Electrification Fund, which has been seriously eroded due to the uneconomic electricity tariff. Since the REF is obtained from a 6% levy on the electricity bill, when the electricity tariffs remain stagnant the REF will also erode. This is further compounded by the hyperinflation in the country. Ideally, most of the funding should be used to support income-generating projects which not only reduce poverty but also help improve the viability of the rural electrification programme.

Conclusion

On average, the past few years have seen the poor women in Zimbabwe's rural and urban areas facing more problems in accessing energy services. Fuel supplies have been erratic and very expensive. Public transport has also been very difficult to get, and beyond the reach of many. The shortage of paraffin,

the fuel generally used for cooking and lighting in urban areas, has forced residents to turn to firewood. This, in turn, has led to environmental degradation as residents turn to peri-urban farms for 'free' firewood, and has exposed women to physical and sexual abuse from law enforcement agents.

In the electricity sub-sector, however, there has been increased electrification of the rural areas, although the funding for the Rural Electrification Program is inadequate and the programme is threatened unless the electricity tariffs are revised drastically upwards. Very little impact has been recorded on the well-being of women, mainly due to the high cost of devices for electricity use such as stoves, etc.

The quality of supply has deteriorated as ZEDC struggles to maintain the system on an uneconomic tariff. Subsidies of fuel have been abused and are not reaching the intended beneficiaries. The funds could better be channelled to assisting the poor engage in income-generating projects.

The government intention to revise the national energy policy is an opportunity to address at a high level the energy and gender dimensions in the country. A multi-stakeholder group is in its formative stages which will include members of the GENEZ in lobbying for specific provisions to address the gender issues identified in the consultative process.

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“Women in the energy industry work mainly in administration, sales, finance, catering and personnel. The energy sector has a highly masculine image. This is known to be a significant barrier to female participation.”

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National Papers: Asia



A rural woman in Vietnam uses LPG to cook food in her restaurant business.
Credit: EASE project, managed by ETC Foundation, 2006

Energy, Gender and Achievement of the Millennium Development Goals in Bangladesh

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The paper reflects the results of a national consultation workshop organised by Prokaushali Sangsad Limited and the Gender and Energy Network of Bangladesh, with assistance from ENERGIA, in preparation for CSD 15. It is clear that energy is essential for progress towards the Millennium Development Goals (MDGs), with their targets for gender equity and empowerment of women, as well as poverty reduction, improvements in health and education, and environmental sustainability. Although Bangladesh is making progress in socio-economic development, especially in reducing poverty, this paper identifies constraints related to energy and gender that affect the country's ability to achieve the MDG targets.

The energy sector in Bangladesh is controlled by the government, and there is a substantial shortage of energy compared to what is needed for overall economic growth. National energy planning and policy-making is focused largely on industrial demand and the urban sector, with less attention to the needs of rural households and small businesses. In many rural areas, women and children spend a significant amount of their time collecting wood, agricultural residues and animal wastes for use as fuel. However, women have very little input into energy decision-making and are generally not targeted as primary beneficiaries of energy services.

Recognition of women's energy needs for household responsibilities and small business activities could make a significant contribution to Bangladesh's efforts to reduce poverty, raise health and education levels, and prevent pollution and environmental degradation. Furthermore, increased access to energy for women can create new economic and social opportunities for families and communities, while decentralised energy planning and delivery mechanisms can help empower women and strengthen their involvement in energy-related decision making.

Key recommendations:

■ *Energy and transportation needs should be considered holistically in national planning and the formulation of development projects, with priority given to women's needs, especially for income-generating activities that support poverty alleviation.*

■ *Access to electricity should be extended to all levels of society, including through decentralised renewable energy systems, with strategic emphasis on education and health facilities.*

■ *Elimination of indoor air pollution from cooking must be a priority for the disease prevention action plan of the health sector.*

Energy Scenario in Bangladesh

Due to its agriculture-based economy, Bangladesh has a very low rate of per capita commercial energy consumption compared with neighbouring countries in South Asia. Non-commercial energy sources, such as wood, crop residues and animal wastes, account for half of the country's energy consumption. There are indications that consumption of biomass energy has already exceeded the regenerative limit, which will lead to an ecological crisis in rural areas of Bangladesh.

Electricity generation depends almost completely on natural gas. Domestic supplies of natural gas are also used for industrial and commercial purposes, as well as household cooking, in some areas. Other commercial energy sources include imported oil and hydropower. Most recently, coal has been considered as a source for commercial energy.

The country suffers from an acute shortage of electricity, which has severe negative impacts on the economy. Power gen-

eration capacity in Bangladesh has stagnated around 4200 MW in the past several years, whereas the customer base for electricity has grown by 11.5% per year. Only about 33% of the total population has access to electricity, with about 80% in urban areas and only 20% in rural areas. Despite government efforts to improve power supplies, there continue to be shortages and poor reliability. Furthermore, capital investments are difficult to recover because per capita usage of electricity remains low.

The gap between electricity supply and demand is estimated to be around 2500 MW and to be responsible for economic losses of around US\$1 billion per year, according to a study by the World Bank. Factories are often forced to run fewer shifts or use their own power generators, driving up the cost of production. The garment sector, for example, has suffered 30% production losses due to the erratic power supply; such financial losses directly affect the labour force in the garment indus-

try, 80% of which is made up of young women. In rural areas, businesses generally use small diesel generators.

Nationwide, solar electrification has shown some promise, with about 80,000 rural households using solar home systems. The very successful programme of solar electrification includes activities of the only women-owned energy enterprise – the Coastal Electrification and Women’s Development Cooperative – which has sold more than 1700 solar home systems and 6700 DC lamps, and introduced micro-financing options.

Like many other developing countries, the energy sector of Bangladesh remains centralised within the government, reflecting its importance to the economic development of the country. The policy planning of the energy sector is influenced primarily by large industries, and closed to input from stakeholders and advocacy groups representing households and small businesses. Procedures for setting national energy priorities, therefore, do not often take into account the differences between men and women in energy usage or needs. This is most apparent when it comes to the rural energy sector. Despite their key roles in energy collection, purchase and usage, women are not generally targeted as primary beneficiaries of energy services. Resolving these problems and improving the status of women will require an understanding of gender relations, as well as gender-focused and gender-mainstreaming actions.

Energy, gender and the MDGs

The World Summit for Sustainable Development (2002) in Johannesburg identified access to energy services as an essential requirement for economic growth, poverty reduction and achievement of the Millennium Development Goals. A number of gender and energy issues have been identified under this study in relation to the MDGs.

MDG 1: Poverty and hunger

The level of poverty in Bangladesh has dropped steadily at a rate of 1 percent a year since the 1990s. Development aid dependency has decreased from 3 percent of GNI in 1996 to 2.2 percent in 2001. Growth of real GDP has seen small but steady increases, and was close to 5 percent from 2003 to 2005.

Energy planning and pricing can be used to try to provide expanded opportunities for the poor, and to specifically address women’s needs. For example, high fuel prices have different impacts on men and women because under the traditional gender division of labour women are the primary providers and users of energy resources. If the household cannot afford to purchase fuel, then women and children must collect natural fuels to meet their energy needs. Since women’s labour is assumed to be free of cost for the family, it is rarely taken into account in calculating national energy needs and expenditures, but expenditures of women’s time and labour on fuel collection reduce women’s ability to provide food and income for the family. However, the energy sector primarily focuses on productive activities that are male-dominated, neglecting the productive role of women, and ignoring their household maintenance tasks.

In terms of women’s needs, greater access to electricity is

important because it allows them to have more flexibility and efficiency in performing their household tasks and income generating activities – even though it may also make the work day longer. Cleaner fuels and improved cooking and heating equipment are also important. With better access to information, training and credit, women can take advantage of new and better energy technologies for their homes and businesses, or even engage in energy-focused businesses such as building, manufacturing, selling, maintaining and repairing energy systems and appliances.

MDG 2: Education

There is a national target to have gender parity in primary and secondary education, preferably by 2005, and at all levels of education before 2015. Bangladesh has a strong commitment to expanding access to education, especially for girls, and the gender gap in education has almost been eliminated. The demand for female education has become more prominent with the modernisation of the urban private sector, the expansion of employment opportunities for young women in the garment industry, and the growth of micro-credit enterprises among rural women.

In rural areas, the high rate of poverty means that children’s labour is needed for collection of firewood. However, the government has offered incentives to encourage parents to send their children to school instead of keeping them home to work, such as the Food for Education programme, under which children receive food supplements in exchange for school attendance. As a result, although rural children may still need to spend some time collecting fuel as a necessity for survival, they are also more likely to be able to get an education as an investment for the future. Another government programme offers scholarships to encourage parents to send their girls to high schools, and close to four million girls have received these scholarships.

MDG 3: Gender equity and empowerment of women

Women face inequality in the socio-economic and cultural structure. Their family responsibilities limit their access to the labour market, their gender limits their choice of occupations, and within paid jobs their wages are not equal to those of men.

Most women, including not just housewives, but also entrepreneurs, advocates and energy professionals, currently have little role to play in energy decision-making. In the typical work environment at energy-related enterprises and industries, women professionals tend to be segregated into administrative and accounting job categories, whereas men are more often in the technical and field-based jobs. Furthermore, women in Bangladesh have often joined energy institutions later than men, which contributes to the fact that they are not well-represented at the senior levels of management. On the Rural Electrification Board (REB), for example, approximately 8 percent of the officers are women, and only 11 percent of the total workforce. In the rural electrification cooperatives, only 20 percent of the staff are women. (It is interesting to note that no mandatory gender policy is followed by the REB, as per the rules of the government.)

Access to energy can create new opportunities for women,

their families and their communities. Electricity and improved stoves for more efficient use of fuel upgrade women's working methods and reduce their time and labour. Electricity also provides women with access to information on the radio and television about health, education and political affairs. Within electrified rural areas, empowerment of women has raised their social position and increased their roles in family decision-making. Access to micro-credit combined with technical training of rural women has also resulted in successful energy service enterprises.

MDGs 4, 5 and 6: Health issues

In Bangladesh, health projects were in place with their own specific targets even before the MDGs were adopted. The health sector of Bangladesh is under the Ministry of Health and Family Welfare, which has undertaken a Health, Nutrition and Population Sector Program with an objective of meeting the national goals identified through the Poverty Reduction Strategy Program (PRSP) as well as the health-related MDGs. Significant resources are being spent on basic health care services, disease control, immunisations, and family planning, but there is no direct focus on the hazardous implications of household energy needs on women's health. Preventive action on this topic is not undertaken by the national health projects. In fact, such issues are limited to the research performed by the government-sponsored laboratories, with very little effort at dissemination.

There are a number of energy-related impacts on the health of women and children in Bangladesh, especially in rural areas. In addition to the physical strain and time burdens of collecting fuel, there are negative health impacts related to the smoke from cooking fires. Women and children are most affected because they spend more time inside the kitchen than men. The health impacts associated with burning biomass fuels include acute respiratory infections, chronic lung and heart disease and other damage. Kerosene lanterns are also known to pose household risks, both because of their fumes and potential fire hazards.

In addition to preventing health risks, reliable power is also essential for good care in health facilities. Improvements in basic lighting are particularly important for women, not just for better conditions in their homes, but also for mobility in the streets, and improved services in health centres and education facilities.

MDG 7: Environmental sustainability

The absence of women in energy programming and an overall lack of recognition of energy-related gender issues have several important consequences. As energy service providers remain out of touch with household and small business energy needs, and energy providers and users are oblivious to sustainable energy alternatives, there is an increasing likelihood of environmental degradation from continued reliance on traditional biomass fuel collection and combustion. Wood supplies are being depleted with the increasing demand of fuel, and agricultural productivity is affected by removal of organic matter from the fields.

Recommendations for National Level Action

1. Energy needs of women should receive priority in national planning

Energy should not be separated but considered holistically in the project formulation process. The practical energy needs of rural women should be addressed in the planning process. This should include availability of transport where needed, and arsenic-free tube wells within walking distances. Many of these issues are already covered in the national plans, but they need to be designed with the option of alternative energy resources.

2. Productive energy needs of women should be met for poverty alleviation

Women's need for access to energy, specifically for income-generating activities like using sewing machines, solar dryers and grinding machines should receive priority in project planning for the benefit of women. It is essential that policies recognise the advancement of technologies in alternative energy, and try to introduce energy efficiency for better productivity at lower cost. Micro-financing of energy products and services will ensure rapid adoption of modern energy by the poor and unserved.

3. Strategic application of energy for women's empowerment

Energy should be made available for adult education, using grid or off-grid electricity for radio, TV, internet, and community participation. Social empowerment interventions through the civil society and NGOs should be encouraged to introduce energy issues and constraints. These needs should be addressed in project design.

4. Energy for mobility

Transportation increases market access for women's products. This is especially true for the remote and distant locations, where transport is unavailable and people, women in particular, feel disadvantaged due to their location. Transportation has a direct impact on the reliability of basic services made available to women through the public programmes and civil society, which may include provision of immunisation medicine for children, contraceptives for women and other medical support for people and farm animals.

5. Electrification for women's development

Electrification should be extended to all levels of the society since there is much scope for women's individual economic and social development and family's enrichment from the use of electricity.

6. Decentralised power for the benefit of education of the rural children.

It is recommended that decentralised power from renewable energy like solar electrification could be made available to the households to ensure better education for the children.

7. Good governance

It is necessary to decentralise projects and programmes developed for utilisation of energy for the benefit of women and children in the rural sector so that local oversight is possible. Such programmes should ensure accountability of expenditures and good governance to maximise the benefits received. Political commitment for social advancement will require accountability at the administrative level and management level for schools, health clinics, energy service providers and others.

8. Assessment of performance with reference to access to electrification

People with electrification services are known to be privileged, and hence perform better than those without such services. It is hence suggested that the quality of life indicators such as access to education, training, health, education, housing, sanitation, decision-making, and awareness regarding HIV/AIDS should all be assessed with reference to access to electricity.

9. Ensure distributed power for health facilities

It is recommended that reliable sources of power be available for all the remote health service centres in the country, irrespective of the status of electrification in the location.

10. National plan for reducing indoor air pollution

Elimination of indoor air pollution from cooking must be a priority for the preventive disease action plan of the health sector. A widespread public awareness programme should be introduced through the NGOs and civil society organisations.

Conclusion

The MDGs are intended to focus attention on the challenges in eradicating poverty, with an explicit emphasis on women. However, implementation within the country is sub-

ject to various parameters. It relies on the political will of the leaders and the process of undertaking firm steps toward reaching such goals.

The workshop created a platform for discussion about honouring the commitments undertaken by the government in the energy, education and health sectors. Official representatives and researchers from these particular sectors discussed successes and barriers affecting achievement of the MDGs in the development projects they have undertaken. As a representative from a key organisation coordinating the achievements of the MDGs, the invited speaker from UNDP Bangladesh reported positively on the overall achievements and findings in Bangladesh.

References/Readings

- Begum, Khodeza, 2006. Achievement of MDGs through Projects and Programs, Bangladesh Ministry of Health and Family Welfare Government
- ENERGIA and ECBL, 2003. Comprehensive Gender Strategy and Action Plan for Integration in REB Master Plan, Royal Netherlands Embassy, Dhaka
- Prokaushali Sangsad Limited, 2004. Opportunity for Women in Renewable Energy Technology Applications in Bangladesh, ESMAP Report, World Bank
- UNDP, 2001. 'Battery Operated Lamps Produced by Rural Women of Bangladesh' in Generating Opportunities: Case Studies on Energy and Women, www.undp.org/energy/publications/2001/2001a.htm
- USAID/Bangladesh, 2005. Gender Analysis & Recommendations for a Gender Plan of Action: Rural Energy Portfolio.

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“Since women’s labour is assumed to be free of cost for the family, it is rarely taken into account in calculating national energy needs and expenditures, but expenditures of women’s time and labour on fuel collection reduce women’s ability to provide food and income for the family.”

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Mainstreaming Gender into Energy Policies in India

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For the most part, policymakers do not take into account the differences between men and women relating to distribution of, and power over, energy services. As a result, policies generally do not recognise that there is a gender bias in energy services, and women's energy needs tend to be marginalised in policy documents.

With support from ENERGIA, Integrated Research and Action for Development (IRADe) organised a national consultation workshop as a contribution to the development of national planning for CSD 14 and 15, emphasising the inclusion of gender considerations within the discussion on energy for sustainable development. The main objective of the consultation was to identify issues of importance regarding the country's implementation of the Millennium Development Goals, especially on how to incorporate gender considerations into energy projects and policies leading to sustainable development.

In India, as in many countries, there is an imbalance between men and women in terms of access, use, and control of resources, and general poverty levels. Women face social, political, economic and cultural barriers that limit their participation in decision-making with respect to programs or projects in the field of energy, while generally in rural areas the women are the ones who are the main providers and consumers of household energy.

Key recommendations:

- *Ensuring cooking fuel availability within 1 kilometer of every village*
- *Engaging women as energy management planners, using their experience as users and suppliers of energy resources*
- *Expanding employment opportunities for women by promoting energy supplies for small enterprises, including businesses as energy providers, and easing women's access to small loans and financing programs*
- *Providing special training programs for women to create a cadre of energy professionals who can help integrate a gender perspective into national policies and projects*

Current Energy Situation in India

India, with a population of slightly more than one billion people living in 25 states, is the second most populous country in the world, behind China. At a growth rate of 1.6% per annum, the country's population is projected to grow to 1.16 billion by the year 2010. The Indian economy uses a variety of energy sources, both commercial and non-commercial. Fuel wood, animal waste and agricultural residue are the traditional or 'non-commercial' sources of energy that continue to meet the bulk of the rural energy requirements even today. However, the share of these fuels in the primary energy supply has declined from over 70% in the early 1950's to a little over 30% today. The traditional fuels are gradually getting replaced by 'commercial fuels' such as petroleum products, natural gas, electricity and to some extent fuels such as coal and lignite.

The 2001 census found nearly 700 million people without access to modern energy. Nearly 300 million people do not have access to electricity, but an even larger number (625 million) do not have access to modern cooking fuels.

The traditional approach to energy in development policy and planning until now had assumed *gender neutrality*. However, the situation is changing now. The Planning Commission of India has drafted an Integrated Energy Policy

which gives due consideration to gender issues. The efforts of IRADe (Parikh et al, 2002) have been reflected in the policy, thus giving emphasis to gender considerations in energy policy.

Roles / Status of Women

Fifty-eight years after independence, Indian women still toil daily to collect fuelwood, crop residues and animal dung. These 'traditional' fuels still provide 80% to 90% of the energy needs in rural areas. Billion of days of women's time are spent in gathering traditional fuels and processing them (chopping, drying, turning, storing, stacking and handling) and fetching water.

A recent study by Integrated Research and Action for Development (Parikh, 2000) showed that in Himachal Pradesh, a relatively better-off state with wide availability of LPG and kerosene, women still walk 30 kilometers every month to fetch fuels, spending 40 hours during 15 trips, each of about 2 kms. This burden, which is bigger in other states, every week causes 50% of the women to experience backache, and 80% to suffer from neck ache, headache and bruises. Most of the women have encounters with wild animals and snakes. Cooking with these fuels also causes health impacts, especially for women and children, as they emit a variety of pollutants, often in poorly ventilated kitchens.

Overall, there is an imbalance between men and women in access, use, and control of resources, and in their general poverty level. While in India the main sources of energy are currently fossil fuels and biomass, structural adjustments in the energy sector aim towards privatisation, without addressing the need for energy access for the poorer parts of the population. For women, there are additional barriers of a social, political, economical and cultural type, when compared to men, which impede their development on terms of equality. Only on a few occasions do they find themselves in positions that allow participation in decision-making with respect to programmes or projects in the field of energy, while generally in rural areas the women are the ones dedicating their time to collecting fuel wood to prepare food for all the family, making them the main consumers of household energy.

Gender mainstreaming seeks not only to involve more women in development projects but also aims to even out existing inequities in social relationships through actions that take into account women's disadvantaged situation. It has been realised that energy projects that are sensitive to gender and engage a wider participation of women and men are not only more efficient, successful and sustainable, but can also support women and men's social empowerment, providing the necessary tools for improving their quality of life.

Access to various resources, income-earning opportunities and participation in decision-making are important aspects of gender analysis that should not be overlooked. According to the National Family Health Survey 2 (1998/99), Indian women lag behind men in all these aspects, with illiteracy levels as high as 58.2% and low employment status. Women's decision-making within the household and community is restricted, which limits their ability to influence processes and resource allocations on many issues, including energy. According to the survey, the decision-making power of women in India is mainly restricted to choices such as what to cook (85.1%). When the matter comes to money, only 59.6% enjoy the liberty to choose.

Key Energy and Gender Issues Identified

A. Differences in responsibilities

There are typical differences in terms of responsibilities, time budgets and decision-making power between men and women. Many planners often fail to recognise the multiple demands on women's time, including domestic responsibilities, work to generate income, and community involvement. An engendered energy policy would recognise that women and men have different roles and energy needs. Women make decisions relating to domestic energy uses (for example, in food preparation and heating water), and the burden of energy shortages, price increases and cost-recovery plans tend to fall disproportionately on women. Hence there is need to address the current gender differences with respect to energy policies.

In India, the division of labour and responsibilities in households has been captured by a study done by IRADe in the state of Himachal Pradesh, India. The study compares two districts of the state (Shimla and Sirmour), the former being more urbanised than the latter. The results showed that in both districts the responsibility for fuel wood, agricultural residues and dung cake procurement was primarily assigned to young

women and older men. On the other hand, procurement of modern fuels like LPG and kerosene was mainly the responsibility of young men.

In many areas of India – especially rural areas – women are responsible for gathering fuels needed for performing household duties. Widespread reliance on fuel wood and dung increases the scarcity of available biomass resources, imposing further burdens on women and children, who must then spend more time and energy collecting and carrying fuels. A study conducted in three states of northern India, (Himachal Pradesh, Rajasthan and Uttar Pradesh) shows that on an average about 3 hours are spent per person per trip for fuelwood collection. Approximately 40 hours per month per household are spent on fuel wood collection, thus leaving the women with little time or opportunity for other work. This time, if saved, can be used productively either for increasing the financial position of the household or gaining education.

B. Lack of attention to women's aspirations

In order to directly address women's aspirations, it is important to hear women's voices on how to improve their situation, and what they find important and for what reason. This can be done by means of surveys, opinion polls or voting. For example, when asked the reasons for shifting to clean fuels during the study of Himachal Pradesh (Parikh et al, 2000), the following comments were received: "It is convenient to turn on/off"; "It is time saving"; "I like it, since it leads to a cleaner household"; and "We cannot afford it, it is very expensive", etc. Women in Himachal Pradesh saw timesaving as an important attribute, which would allow them more time to be with their families.

Since, by virtue of their traditional roles, women are often the primary users of fuels and energy appliances, it makes sense that they should be consulted concerning their assessments of energy problems and their suggestions for solutions. Hence, lack of value placed on women's voices tends to make it difficult to implement policies designed to reduce their drudgery.

C. Energy as a key variable in achieving the MDGs

Expanded access to energy is an essential prerequisite for meeting all of the MDGs. UNDP and other organisations have advocated for the adoption of a new global target for energy in order to fulfil other international development targets of the Millennium Development Goals.

Energy issues need to be addressed in order to eradicate poverty and hunger, (energy is needed for cooking and livelihoods), achieve universal primary education (girls often do not go to school to help their mothers with their chores), reduce infant mortality and maternal deaths (heavy loads and indoor pollution add to this health burden) and promote gender equality and empower women.

D. Health issues

Biomass fuels account for 80 percent of all household fuel consumption in developing countries, most of it for cooking, which is done primarily by women. As a result, women and their young children are exposed to high levels of indoor air

pollution. Cooking fires are generally inefficient and produce a number of pollutants associated with incomplete combustion. Exposure to these pollutants can lead to acute respiratory infections, chronic obstructive lung diseases, low birth weights, lung cancer and eye problems.

As discussed earlier, there are several health issues other than respiratory diseases that are related to collection of fuel-wood and primarily affect the health of women, including back ache, neck ache, headache and bruises, and encounters with wild animals and snakes.

Recommendations for National-Level Actions

1. National mission to bring fuels closer

A national mission on “Cooking fuel availability to rural women within 1km” should be launched. India needs a political commitment to set such a goal. For example, biomass should be easily available within one km of any village to reduce hardship in carrying heavy loads. Alternatively, kerosene or LPG should be available within reasonable proximity. A mission similar to ‘Rajiv Gandhi Mission for drinking water’ that tried to bring water within one km in rural areas needs to be undertaken for bringing fuels closer to people.

For example, women’s groups can form tree-growing co-operatives for fuel wood or oil seed plantations to develop sustainable energy supplies. They can determine what energy sources such as wood, agricultural residues, animal dung, oil seeds, solar, biogas, LPG or kerosene could be available at least cost and effort. After examining this, user groups could also identify the land and the type of plantation (e.g., wood, oil seed, agriculture etc.) that will serve the purpose. The involvement of Panchayats and other local bodies is necessary to provide an enabling policy environment. Even the transportation problem can be addressed in a systematic manner, if the supply is located in one place. A policy can be formulated to accommodate such a programme under various existing poverty alleviation schemes, including the new employment guarantee and other Bharat Nirman schemes.

2. Access to energy for poverty alleviation

One needs to go beyond cooking energy and extend the scope of gender-sensitive energy policies to include income-generating or livelihood activities. Both rural and urban women need adequate energy supplies for their small and medium-scale enterprises and home industries. Many of these informal sector activities are highly fuel-intensive, and their viability and costs are affected by energy prices and availabilities. Micro-enterprise development initiatives, such as Self Help Groups, should be emphasised, interlinking micro-credit and energy programmes, and providing promotional incentives for running small-scale energy business units to enhance the employment opportunities for women and encourage them to use resources available locally.

3. Micro-enterprise opportunities in the energy sector

The role of women as energy providers can be transformed into suitable micro-enterprises if they can manage fuel wood or oil seed plantations, dispense kerosene or LPG, assemble

solar panels, build cook stoves and brick kilns and even manage electricity distribution and bill collection. New opportunities for sustainable technologies can be more readily adopted if women have the necessary resources to participate in the formulation and implementation of energy programmes and policies.

4. Financing

A paradigm shift is also necessary to change from a ‘subsidy mindset’ to micro-credits and loans. The aim should be to use Self Help Groups for micro-enterprise development involving users of energy or suppliers, or both.

5. Role of women in energy management and renewable energy

As the major users of traditional biomass energy resources, women have practical interests and expertise about how different fuels burn, efficient fire management, fuel-saving techniques, and the advantages and disadvantages of different fuels and stoves. However, this knowledge is not generally taken into account in energy policy-making. Women’s economic contribution to development is unpaid, unrecognised and undervalued, resulting in less attention being paid to technology development and investments aimed at improving women’s work in comparison to men’s work. Women may have an interest in renewable energy to address their labour-saving and human energy needs, such as pumping water for household uses, food processing and grain grinding, and transport. Women are not just a special interest group in renewable energy; they are the mainstream users, and often suppliers, of energy. Without their involvement, renewable energy projects risk being inappropriate, or failing, since women can influence family purchasing decisions related to energy, and their experience in energy-related enterprises is valuable. Energy policy-makers who ignore women’s needs will be failing to make use of a powerful force for renewable energy development.

6. Millennium Development Goals and energy

Energy should be recognised as one of the most essential inputs for sustaining people’s livelihoods, and necessary for poverty alleviation (*MDG Goal 1: Reduce poverty and hunger by 50%*). Women are often supported in their daily work by girls, and sometimes boys, who miss school, thereby damaging their future livelihood choices. Thus providing energy would relieve them of household burdens and give them the time to attend school (*MDG Goal 2: Achieve universal primary education*). Reduction of indoor air pollution due to availability of better fuels helps in reducing child mortality and improves maternal health (*MDG Goals 4 & 5: Reduce child mortality (by 66%) and Improve maternal health (by 75%)*). Access to modern fuels reduces deforestation and thus ensures environment sustainability (*MDG Goal 7: Ensure Environmental Sustainability*). Life expectancy also increases, and energy facilitates access to water and sanitation.

7. Stakeholder involvement

Women require support in being able to participate in energy decision-making, which requires positive political will

to give them that opportunity. Policies considering women's needs should also go beyond cooking energy and address their demands for other types of energy uses. Use of media and electronic communication to educate the public and raise awareness can also help facilitate stakeholder involvement in energy discussions.

8. Capacity building

Women should be provided special training and fellowships in various institutions and universities to create a cadre of women energy professionals. Capacity building and assistance is also needed for all energy professionals to help them integrate a gender perspective into all energy programmes, policies, and projects.

9. Research needs

Greater efforts are needed to disseminate reports on gender and energy activities and share information and knowledge on national as well as international experiences. It would also be useful to develop various species of plants to use for producing biofuels and promote cultivation practices for women by women. For advocacy purposes, it is necessary to build up a body of evidence and experience (conceptual, methodological, and case studies) linking attention to gender in energy policy and projects to equitable, efficient, and sustainable outcomes in energy and development.

10. Health issues

In order to combat health issues arising from the use of biomass fuels it is necessary to sensitise health centers so they can spot and treat respiratory diseases related to indoor air pollution. The impact of aggravating conditions of agricultural production on the well-being of men and women and their access to work must also be taken into account.

Conclusion

Although until recently gender issues were not considered particularly relevant to the establishment of energy policies and programmers, it is now apparent that societal pressures for greater gender equality and for more sustainable and effective energy systems can be mutually reinforcing. Energy interventions can become more effective when they are responsive to the needs of different users in differing conditions. Reaching this goal will require changes in how energy programmes are formulated and implemented, in how energy decisions are made, and in who is involved in making those decisions. A more participatory approach to energy policy decisions will allow both men and women to be engaged in defining energy problems and in implementing appropriate solutions.

References/Readings

- Bhogle, S, 2003. 'Rural Women as Agents of Improved Woodstove Dissemination: A Case-Study in Huluvangala Village, Karnataka, India' in Energy for Sustainable Development VII, No. 3
- Cecelski, E, 2000. The Role of Women in Sustainable Energy Development, Subcontractor Report, National Renewable Energy Department, Colorado, USA
- Parikh, J, 2000. The Energy Poverty and Gender Nexus in Himachal Pradesh, India: The Impact of Clean Fuel Access Policy on Women's Empowerment, IRADe project
- Parikh, J. et al, 2002. Rural Pollution and Health Impact, EERC, The World Bank. IGIDR project report
- www.fao.org/Gender/Static/CaseSt/Ind/ind-e.htm
- www.gov.si/mzz/dkp/mny/eng/gender.html

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“The role of women as energy providers can be transformed into suitable micro-enterprises if they can manage fuel wood or oil seed plantations, dispense kerosene or LPG, assemble solar panels, build cook stoves and brick kilns and even manage electricity distribution and bill collection.”

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Gender Sensitivity in Meeting Energy Needs to Overcome Poverty in Indonesia

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This paper is based on a review of information on the energy sector compiled by the Directorate General of Electricity and Energy Utilization (DJLPE) for the Indonesian CSD 14 National Report. The Director General of DJLPE is actively involved in the Steering Committee of the Gender and Energy Network in Indonesia, along with representatives from NGOs and academia.

Using the CSD 14 National Report as a starting point, Yayasan Dian Desa, Indonesia, which is the national focal point for the Gender and Energy Network in Indonesia, is working with other members of the Steering Committee to strengthen the gender perspective in national activities in the energy sector. Its mission is to address the energy needs of rural and urban poor women by enhancing access to clean energy products and services in a sustainable way.

The majority of poor people in Indonesia live in rural areas and still use traditional fuels as energy sources for their daily needs. They are far from the reach of modern energy services, even kerosene. Due to traditional roles, cooking and home work activities are mostly performed by women. Considering this reality, a gender perspective is necessary in efforts towards fulfilling energy needs within the framework of overcoming poverty.

Key recommendations:

- *Development of renewable energy in rural areas using locally available resources and a decentralised implementation system.*
- *Gender mainstreaming in national energy diversification and conservation policies in order to address poverty issues more effectively.*
- *Training activities on gender and energy for policy-makers in government, NGOs, academia and the private sector, as a means to increase their awareness.*
- *Development of tools for addressing gender and energy in sustainable development.*
- *Compilation of activities that comprise best practices for including a gender perspective in the energy sector.*

Energy Context in Indonesia

Energy demand in Indonesia has sharply increased due to national development and population growth. Over the last three decades, total commercial primary energy consumption rose more than tenfold, from about 50 million barrels of oil equivalent (BOE) in 1970 to about 760 million BOE in 2003. This increased commercial energy demand has been met mainly by oil (52%), natural gas (21%) and coal (20%). Only 7% has been from renewable energy, mainly geothermal and hydro.

The country's high dependency on oil is mostly due to long-term price subsidies, which have also led to inefficient use of energy in all sectors. This heavy reliance on oil raises concerns about the security of energy supplies, especially with skyrocketing international oil prices, and limited domestic reserves. In addition, oil utilisation is associated with CO₂ production and increased global warming. Therefore, the government has made a commitment to reduce the country's dependency on oil. Primary policy measures in Indonesia's National Energy Policy include: intensified energy exploration to increase available domestic supplies of oil, natural gas and coal; diversification of energy sources, both renewable and

non-renewable; and increased energy conservation efforts.

However, the largest proportion of energy consumption in Indonesia is still for household use. According to a survey conducted by the University of Gadjah Mada, household activities account for more than 40% of the country's total energy use. Due to traditional gender roles, supplies and utilisation of household energy for cooking and home appliances are primarily managed by women rather than men.

In urban and semi-urban areas, kerosene is the main source of energy for cooking and home food production operations. However, households dependent on kerosene are faced with increasingly difficult access to kerosene due to gradual cuts in national fossil fuel subsidies, and increased precariousness of supplies.

In rural areas, almost all households use traditional biomass fuels such as wood and agricultural residues for cooking and other activities. Furthermore, use of biomass fuel in the domestic energy sector is not likely to be phased out in the foreseeable future; consumption of biomass is increasing in absolute terms, even though it is decreasing as a proportion of total energy use. A high proportion of the households using

biomass fuel have little opportunity to switch to other energy forms, either due to economic constraints or geographic remoteness and distance from kerosene or LPG distribution infrastructure.

Indonesia's electrification ratio is around 53%, which means that many areas, particularly the remote, rural, or isolated ones, have not been reached by grid-based electrical power. Increased access to electricity is needed, through extension of power grids as well as installation of decentralised small-scale energy systems powered by renewable energy.

Key Energy and Gender Issues

In order to play a role in overcoming poverty and hunger, and meeting the other targets set out in the Millennium Development Goals – including empowerment of women, improvements in health and education, and environmental sustainability – energy policies need to consider household energy needs for cooking, domestic tasks, and home based productive activities.

Equitable access to clean, affordable fuels and energy conversion devices

Since women and girls are the ones most often responsible for acquiring or collecting fuel for domestic purposes, there is a direct connection between their living conditions and how easy or difficult it is for them to access fuel, in terms of distances travelled, quantities and quality of fuel available, and affordability.

In order to avoid prolonged precariousness of conditions in households dependent on kerosene, there needs to be:

- improved equity of access to kerosene
- access to alternative fuel types and/or energy conversion devices – with a focus on developing affordable, appropriate fuels and energy conversion devices
- outreach to vulnerable groups to improve equity of access to kerosene or alternative fuel and energy conversion devices.

Concerns with regard to users of biomass fuel can mainly be addressed by:

- enhancing the sustainability of biomass fuel availability, especially in areas where there is unsustainable collection and extraction of biomass fuel; and
- facilitating the improvement of conditions of users of solid biomass fuel through technical and social interventions.

Women's empowerment through sustainable livelihood strategies

The economic condition of women is one of the most crucial aspects of women's welfare. The energy sector could improve women's economic empowerment in several ways. Energy-based interventions could contribute to lightening the burdens of women, in a social context where women expend a large portion of their time and strength on energy-related household tasks. Through interventions improving energy services and enhancing the effectiveness and efficiency of

energy devices related to women's household tasks, women could also gain more free time to pursue training and income-generating activities. For example, improved cooking devices would benefit women not only in feeding their families, but also in home food production and other related businesses that make up primary areas of women's income-producing work.

For these sorts of interventions, there should also be a strategic selection in terms of target areas and target populations; prioritisation should be directed as much as possible towards areas and populations selected based on consideration of the Human Poverty Index, Gender Related Development Index and Human Development Index.

Energy and health

Reducing indoor air pollution from cooking fuels would lead to health improvements for a large portion of the population. This is a concern for households using kerosene, as well as those burning solid biomass fuels. Women collecting biomass fuel also face additional physical hardships related to fuel gathering. These health issues should be addressed through greater access to cleaner fuels and better energy conversion devices.

Reducing hunger should also be a concern for the energy sector, particularly regarding domestic fuel supplies. There is a high prevalence of malnourished children under the age of five in Indonesia, with an increasing trend from 24.7 per cent in 2000 to 27.5 per cent in 2003. Improvement in cooking energy access is one of the fundamental contributors toward good nutritional status of households.

Improving education through energy interventions

Indonesia's Nine-Year Compulsory Basic Education Programme has achieved a net enrolment rate of 72% in urban areas, but only 60% in rural areas. Further, there are also disparities in education enrolment rates between different economic classes (e.g., the richest 20% and poorest 20% of the population) and among regions (lowest in Papua and Nusa Tenggara Timur/East Nusa Tenggara). However, there is no significant disparity between male and female education enrolment rates. Therefore, energy sector interventions should focus generally on poor and/or rural populations. School age children in the poor and/or rural communities are more likely to be absent or taken out of school to help with domestic and agricultural chores or income generating activities. Access to improved energy services (lighting, water pumping, agricultural processing, improved cooking conditions, etc) helps to lighten domestic and agricultural chores, which could increase the time available for children to pursue their education. Increased women's income through energy interventions may also result in increased spending for education for the children.

Environmental sustainability

Besides reducing indoor air pollution, energy interventions to provide access to cleaner fuels and better energy conversion devices will also reduce outdoor air pollution and CO₂ emissions. Secondly, energy efficiency measures such as introduction of efficient energy conversion devices, and behavioural changes could result in returning agricultural residues to the

land for the purpose of making it more productive and preventing these residues from being used as fuel.

Recommendations for National Level Actions

In addition to reducing fossil fuel energy dependence, energy diversification and conservation policies must promote gender equality in order to provide welfare improvements for rural and urban poor populations. The government has begun to introduce rural electrification and renewable energy initiatives, and it is important that gender considerations be strengthened in these initiatives.

The energy sector needs to create a framework for gender mainstreaming by:

- Addressing women's involvement, including women's participation in decision-making and running of energy projects and activities through:
 - A policy framework that accommodates outreach to women to increase education of women and girls in science, engineering and other technical studies, as well as training in leadership skills
 - Technical training designed to be easily accessible to women through training which is more sensitive to women's needs
 - Local production of energy equipment with marketing and business training
 - Creation of publicity and campaigns that accommodate one or all of these conditions: low literacy rates, undeveloped market system and weak communications
- Responding to women's energy needs at all levels
 - Coordinated energy planning, assessment and implementation at the institutional (national and regional) and community level based on (segregated) data to inform appropriate interventions.
- Supporting active partnerships and networking to enhance exchange of knowledge, information, experience, technical supports and financial supports among:
 - institutions in education and technical sectors (academic, research institutions)

- institutions concerned with the women's sector (academic institutions, NGOs)
- external support agencies concerned with gender, energy and/or community development.

- Providing training activities covering gender and energy issues for policy-makers in government, NGOs, academia and the private sector, as a means to increase their awareness.
- Creating and adapting tools for addressing gender and energy in sustainable development, to help policy-makers and implementers take steps to address energy issues using a gender perspective.
- Compiling activities that comprise best practices for including a gender perspective in the energy sector. These should be real examples of energy activities that include a gender perspective and are easy to understand. They can then be replicated or applied in other places.

Conclusion

In the Indonesia National Report for CSD 14, it is mentioned that women's participation, particularly in formulating policies, strategies, and programmes, is still limited. Realising these conditions, some renewable energy projects have involved women, particularly in using energy for productive activities such as handicrafts, small rural industries, and traditional food processing.

A National Focal Point for Gender and Energy Networking in Indonesia was just recently established, with the mission of addressing energy needs of rural and urban poor women by enhancing their access to clean energy products and services in a sustainable way. This organisation is bringing together government institutions, NGOs, universities, and individuals, and providing a good starting point for mainstreaming gender and energy issues.

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“Improved cooking devices would benefit women not only in feeding their families, but also in home food production and other related businesses that make up primary areas of women's income-producing work.”

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Gender and Energy in Lao PDR

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This paper presents the results of a national conference on gender and energy in Lao PDR held in preparation for the 14th Session of the UN Commission on Sustainable Development. A two-day workshop was organised in Vientiane Capital from March 23-24, 2006, to identify issues of importance regarding the country's implementation of the National Growth and Poverty Eradication Strategy (NGPES) and the Millennium Development Goals, especially on how incorporating gender considerations into energy programmes, projects and policies could contribute to sustainable development.

During the national conference, a number of key stakeholders presented technical papers highlighting concrete progress in implementation of activities, lessons learned and challenges towards achieving the NGPES and the MDGs, and made recommendations about ways of including gender in national energy policy considerations.

Although the country has made some major achievements on access to energy service, many energy-related institutional and technological interventions in the past have not only ignored the special needs of women, but have also failed to consider women as active partners in energy programmes, despite Lao women's major responsibility for managing the household's energy needs. Therefore, during the meeting, participants agreed that greater attention to the needs and concerns of women in this area could help key stakeholders promote development goals (MDGs and the National Growth and Poverty Eradication Strategy) through improved energy policies.

Key recommendations:

- *Capacity building for all key government agencies regarding gender mainstreaming in the energy sector*
- *Linking of energy access to employment opportunities for women and micro-credit programmes*
- *Gender disaggregated data to provide accessible information on gender and energy, and gender budgeting to identify gender differences in impacts of public expenditures*
- *Improving opportunities for women professionals to participate in the energy sector*

Energy and Gender Context in Lao

The energy situation in Lao PDR is characterised by low conventional energy consumption. Biomass accounted for 78% of the total energy consumption in 2002, followed by petroleum products (16%), and electricity (6%). The high proportion of fuel wood consumption reflects its widespread use, particularly in the rural areas. Imported oil and LPG are mainly used in the industrial sector. Wood fuels consumption in 2002 was 2.4 million tons and accounted for 69% of total energy consumption in Lao PDR. It is estimated that about 94% of the households use wood fuels for cooking. Charcoal is one of the important traditional sources of energy for both urban and semi-urban populations, and is used mainly for cooking.

Lao PDR is a mountainous country with major tributaries flowing to the Mekong River, so the country has a high potential for development of hydropower. Hydropower is already a major contributor to economic output, government revenues, and export earnings. However, only 623 Megawatts (MW) out of an estimated 18,000 MW of hydropower potential has so far been developed. The Lao PDR has one of the lowest levels of electrification in Asia; only 20 per cent of all villages and 34

per cent of households have access to electricity.

Rural electrification is one of the major achievements in Lao PDR, with the connection rate increasing from approximately 16 percent of all households in 1995 to 38 percent of all households by the end of 2003. However, as electrification moves towards increasingly remote areas, grid connection becomes less viable. In response, the government has promoted off-grid delivery models, favoring renewable technologies. The government's goal is to connect 90 percent of households by 2020, with intermediate targets of 60 percent in 2005 and 70 percent in 2010.

Lao women play important roles in agriculture, small-scale businesses, manufacturing (especially the garment sector) and provision of basic services (especially education and health). Women in urban areas are finding opportunities in information technology, tourism, and business services. Lao women are also primarily responsible for maintaining their families' food security and health. Gender roles vary within various communities of Lao PDR. These variations relate to age and ethnic identity, as well as to the location and livelihood activities of the community.

The gender division of labor in rural communities is often explained on the basis that men do the “heavy” work while women do the “light” work. However, many of women’s traditional “light” tasks, such as weeding of upland rice fields, hand milling of rice, and gathering of fuel wood and water, are more tedious and time consuming than men’s tasks. Women in all ethnic groups also have traditionally deferred to men in community decision-making, in dealings with government officials, and in legal matters.

Most wood energy users in Laos are women. As part of their activities, they are often responsible for gathering fuel wood, and doing the cooking. Many of the people who are involved in the wood fuel trade or who work in rural industries or commercial enterprises that use wood fuels, are women. This means that in wood energy, gender issues play an important role.

Key Energy and Gender Issues Identified

During the consultation process, participants discussed the following gender issues in the energy sector:

Petroleum and energy for electricity is imported and therefore expensive. Electricity service is also not reliable. The need for further electrification remains high. The average cost for non-electrified households (on diesel, gasoline and candles) is higher than what electrified households pay for lighting services.

There is little research on gender issues in the energy sector. However, women and girls are generally responsible for the provision of energy for household use, including gathering or paying for energy for cooking, lighting and heating. Many income activities of women in the informal sector – often critical to family economic survival – are also fuel intensive, and the viability of these activities is affected by energy prices and availability.

The difference in responsibilities of men and women means that women suffer more from health impacts from wood energy use and production. Health and safety are major concerns of women in their use of biomass fuels. Poor women in rural areas use cooking energy systems that are unsafe and polluting, and fuel and water collection systems that expose them to physical assault. Indoor smoke pollution is a major cause of lung disease among poor women and children. Smoke reduction and improved safety for children are often the two most important reasons cited by women for adopting improved stoves and fuels.

Excessive workloads and heavy manual labour (for example, carrying heavy loads of fuel wood and water, and arduous and repetitive agricultural and food processing tasks) may affect pregnant women’s health and well-being. In rural areas, girls are overloaded by work until late in the evening and have no time to study or do their homework. Ethnic women and girls are generally more disadvantaged because of their low educational levels, limited access to energy service, long working hours, and limited roles in community decision-making.

Another problem is that land allocation is often in the hands of men, though women have problems getting firewood.

In areas where forests have been depleted, women and children are made to walk long distances to fetch firewood, though men do sometimes become involved in places where large quantities and pieces of wood need to be transported over long distances.

Women’s access to decision-making within the household and community is restricted, limiting their ability to influence processes and resource allocation on many issues, including energy. As women spend more time than men on basic subsistence activities, such as gathering fuel wood, carrying water, and cooking, the opportunity costs of these activities prevents rural women from undertaking income-generating activities, which deprives poor families of much needed income.

Though they are end-users of energy, there is limited involvement of women at the planning and implementation levels of most of the projects in the energy sector in Lao PDR. Women do not have much access to information on appropriate technologies in the sector, and they are not often in a position to make or influence decisions concerning energy use.

There is a serious lack of skilled female staff in the energy sector, especially technicians. Women’s technical skills are often less than men’s, and women in the energy industry work mainly in administration, sales, finance, and secretary.

Energy is considered as dangerous and risky, in terms of the risks of electricity in private households and public facilities. Boys are expected to face and master these dangers. Whereas they are encouraged to get acquainted with electricity step by step, girls are kept away not only from electric power but also from the power of knowledge (Rohr, 2001). Men are primarily considered to be responsible for the technical side and investments in thermal insulation of homes, boilers, and hot water installations. Electric installation, plumbing, and installation of heating systems are male domains.

Women do not always have access to new technological inputs because of lack of income, lack of access to credit or limited access to extension services. The majority of women in Lao PDR do not have access to credit facilities like men and the lack of micro-financing schemes to promote the use of electricity at household level makes it difficult for the majority of households in rural areas to access electricity.

Lack of statistics about how, why and how much energy is used by men, women and children is not the reason – but an indication – that attention is not paid. There are very few gender and energy studies in Laos. Government staff have low awareness of the different energy needs of men and women. For the most part, planners do not take into account the differences between men and women relating to distribution of, and power over, energy services. As a result, work plans generally do not recognise that there is a gender bias in energy services, and women’s energy needs tend to be marginalised in ministry documents.

Recommendations for National-Level Actions

Below are recommendations made by participants:

1. There is a need for more gender-sensitive energy policies that equally address women’s and men’s energy needs. The ministries concerned should incorporate gender concerns into energy policies and plans nationally. One way of ensuring such an engendered policy is through creating awareness

in policy-makers through international, regional, and national meetings.

2. Build the capacity of energy decision-makers, project officers, village electrification councils and local communities in incorporating gender sensitive participatory approaches and gender mainstreaming tools into energy project planning, implementation, monitoring and evaluation.

3. Increased participation of women in the energy sector, especially at the decision-making level, and improvement of their status relative to men, can help to incorporate gender as an integral part of energy policies and practices. Engagement of women's groups is important for incorporating gender issues into energy policies. Specific attention to gender inequalities is required if women are to participate along with men.

4. Expand the electricity network to full coverage, starting with provinces and districts with very limited access to electricity.

5. Develop energy projects (micro-hydropower, solar and wind energy projects) for off-grid power supply in remote areas.

6. Build capacity of all stakeholders for mainstreaming gender in the energy sector.

7. Collect and analyse gender disaggregated data to provide adequate and accessible information on gender and energy for stakeholders at all levels.

8. Introduce gender budgeting as a tool that should be used to break down and identify the differentiated impacts of public revenue allocations and expenditures as they affect men and women.

9. Enhance the employment opportunities for women. Access to energy should be linked, as a promotional incentive, to running small-scale energy business units for livelihood security and creating more employment opportunities for women.

10. Emphasise the role of female groups by interlinking micro-credit and energy programmes. The government should establish a small fund at the village level for energy development.

11. Promote local energy resources such as biomass, wind, and solar to provide energy services to the women as sustainable energy options.

12. Use media and electronic communication to educate the public and raise awareness on gender and energy. This will include disseminating information on energy use for women.

13. Provide opportunities for women professionals to participate in the energy sector, by improving their qualifications and examining recruitment and working practices which act as barriers to their employment, and by supporting women in the workplace, and employing their skills to reach target markets of women. The ministries concerned should develop personnel strategies for the energy sector. This should include hiring, promotion, and access to training for female staff.

Measures to ensure women's access to opportunities in non-traditional fields should be focused on.

14. Improve the sustainability of renewable energy technology use by including gender tools at all stages in the planning cycle.

15. Provide strong support to the Lao Women's Union (LWU) and Lao National Commission for Advancement of Women (Lao NCAW), which play advocacy and advisory roles on gender and energy issues.

16. Conduct research and analysis on energy and gender linkages in Lao PDR.

17. Support technology inputs (improved stoves, a biogas plant, rural electrification) to meet women's energy needs and promote development.

18. Support village-level initiatives focused on renewable energy sources which will provide women with both new energy services and employment.

Conclusion

Traditionally Lao women have played a key role in energy management – in terms of collection and usage at the household level. Past experience in Lao PDR has shown that most of the energy-related interventions have not mainstreamed gender concerns in their projects. Further, these interventions have not focused on women, despite women being the actual managers of energy resources. Most of the interventions have ignored the needs and roles of women and men. Policy makers and planners have long treated energy projects as gender neutral. The importance of bringing gender perspectives to energy policy analysis and design is still not widely understood and consequently is not fully integrated into mainstream energy development activities. Therefore, women and their energy needs will have to be addressed specifically if poverty is to be reduced through energy.

References/Readings

GRID, 2006. Lao PDR Gender Profile

Ministry of Industry and Handicraft, 2006. Power Sector Development in Lao PDR

National Growth and Poverty Eradication Strategy, 2004.

Rohr, Ulrike, 2001. Gender & Energy: A Perspective from the North, Background paper for UNED Forum Workshop, London, www.earsummit2002.org/workshop

STEA, Renewable Energy Technologies in Asia Project Implementation in Lao PDR

Sunlabob, Profitable and affordable energy services for remote areas in Lao PDR

Village Energy and Electricity, 2004. Best Practice in Lao PDR

Nepal: Prospects and Challenges of Gender Mainstreaming in the Energy Sector

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The Gender in Energy and Water Network, the National Focal Point for the international network ENERGIA, undertook the task of preparing a national report on energy and gender for Nepal as an input to CSD 14 and 15. For the purpose of preparing this paper, two consultation meetings were held to gather information from policy-making and implementing organisations working in the field of gender, energy and poverty. During the consultations, inputs and suggestions were received about existing policy gaps, constraints and challenges related to gender and energy affecting achievement of the Millennium Development Goals (MDGs) in Nepal and the poverty reduction initiatives set out in Nepal's Poverty Reduction Strategy Paper. This paper is also intended to help create greater awareness within national governments and the international community concerning the importance of gender in energy planning and policies.

In Nepal, "feminisation of poverty" is a stark reality, and is ever-increasing due to the current armed conflict. Per capita energy consumption is very low, and mostly based on traditional biomass energy sources. The population is primarily rural, and women are mainly involved in full-time but unpaid agricultural work, in addition to their household and community responsibilities. Women collect fuel wood for cooking and domestic needs, and as fuel shortages increase due to deforestation, women have to work even longer and harder. Access to alternative fuels and energy-related technologies could help alleviate some of women's burdens, but gender discrimination and poverty severely restrict women's participation in decisions about energy, and government policies pay insufficient attention to the needs of women.

Key recommendations:

- *Mainstreaming of gender in energy decision-making and implementation through sensitisation, and 'structural adjustment' to include a critical mass of women, using affirmative action measures such as quotas, capacity building, and legal provisions for positive discrimination in favour of women*
- *Energy projects that foster income generation so that women can pay for rural energy technologies, removing the current demarcation between energy for domestic use and energy for enterprises and agricultural production*
- *Financing of rural energy development by channelling credit to women's groups, together with managerial capacity building, to ensure energy-related enterprise ownership by women*

Present Energy Scenario in Nepal

Nepal relies heavily on traditional energy resources, as no significant deposits of fossil fuel or any other forms of energy generation are available. Although there is potential for hydropower, the harnessing of this energy is still very limited. Nepalese use the least amount of commercial energy in South Asia (around 500 kWh per capita per year). Total energy consumption in Nepal for the period 2003/04 was 363 million GJ, of which the residential sector consumed 90 percent and agriculture sector 1 percent. Biomass provided 86 percent of the total energy consumption, petroleum 9 percent, (mainly in urban areas), hydro electricity only 2 percent, and renewables 1 percent of the total energy consumption (Kayastha, Shrestha, 2003). According to the 2001 Census, 78 percent of household cooking energy is provided by biomass. In rural areas, use of biomass for cooking is significantly higher – up to 86 percent (72 percent wood, 1.7 percent biogas and 12 percent dung) (Kayastha, Shrestha, 2003). The heavy reliance on biomass for

cooking, and the fact that procuring fuel and cooking (including animal feed), is primarily the responsibility of women, leads to impacts on women's health, and lost opportunities due to the demands on their time in the overall management of the biomass fuel.

About 40 percent of the total population benefited from electricity as of the end of the Ninth Plan (1997-2001). This 40 percent included 33 percent from the national grid and 7 percent from alternative energy (ESAP/DANIDA, 2005). Electricity is used mainly for lighting purposes, but the 2001 Census revealed that nearly 58 percent of households depended on kerosene for lighting. Only 31 percent of the rural households had access to electricity for lighting as compared to 83 percent of urban households. The heavy dependence of rural households on a fossil fuel, kerosene, for lighting also calls into question the sustainability of this energy, especially in the current situation of soaring prices for fossil fuels (Kayastha, Shrestha, 2003).

About 84 percent of Nepal's population lives in rural areas, with agriculture as their main livelihood. For the period 2003/04, total rural energy consumption was 288 million GJ, of which 97 percent was residential: cooking, 63.9 percent; heating, 8.5 percent; lighting, 1.31 percent; agro-processing, 3.4 percent; animal feed preparation, 16.5 percent; and others uses, such as for religious occasions and ceremonies, 4.3 percent. Of the total energy consumption of 288 million GJ in rural Nepal, biomass accounted for 98 percent. Electricity accounted for only 0.1 percent of the total energy consumed, petroleum products comprised 1.6 percent, and renewable energy sources 0.5 percent (Kayastha, Shrestha, 2003).

Gender, Energy and Poverty Linkages

Women in Nepal perform productive, reproductive and community/social roles. Women's productive roles are mostly related to agriculture, by virtue of Nepal's agro-based economy. The agriculture work is labour-intensive due to lack of physical infrastructure development. Similarly, the reproductive role of women is also time-consuming and human energy demanding. Women are additionally burdened with the necessity to fulfil community/social activities, due to the socio-cultural fabric and the gender ideology of the Nepalese society. For most of these tasks a great amount of time is spent using traditional and manual techniques.

Almost 94 percent of women farmers live in rural areas (CBS, 2002). They are involved as full-time but unpaid workers in agriculture. Generally, working hours for women in rural areas of Nepal are as high as 11 to 14 hours a day, compared to 10-11 hours for men (Shrestha et al, 2004). The extremely long working hours for rural women are mainly due to the absence of energy-based technology to relieve their work burden. The amount of time spent working, together with the drudgery of the work, has taken a toll on women's health, their opportunities for human resources development and opportunities for alternative income generation, thus affecting their overall empowerment. Research on women, energy and the environment have revealed how energy inputs enhance the capacity of women to meet their families' basic needs, through their subsistence and income-earning activities.

As mentioned above, there is a "feminisation of poverty", with women lacking resources and opportunities within their households, and because of gender discrimination in employment opportunities and wage differentials women are unable to earn income to escape poverty. Women's poverty could be alleviated, however, through increased access to energy technologies. The possibilities of this type of intervention have been revealed in a comparative study of biogas users and non-users. The findings strongly indicate that the introduction of biogas has enabled its users to move up the "economy ladder" and move out of the poverty trap while the non-users still remain within the vicious cycle of poverty (Annual Survey of Biogas Users, 2004). Similar instances have been seen in other energy intervention programmes as well.

Consequences of present trend of energy uses on women

As stated above, the present scenario of energy uses in

Nepal depicts an unsustainable picture. Heavy dependence on fuel wood coupled with the high population growth rate is exerting a continuous pressure on forests, which has caused the rate of afforestation to be less than the rate of felling. The existing annual rate of deforestation, about 1.7 percent, poses a great threat to the environment. The dwindling forest areas have direct impacts on fragile mountain ecosystems, leading to landslides, erosion, loss of biodiversity and climate changes that have aggravated poverty. The uncontrolled burning of agricultural residues and animal dung generates indoor air pollution and deficiency of manure for use as fertiliser, thus impacting agricultural productivity and soil quality.

In addition to the biophysical impacts, a study carried out by Rural Energy Development Programme (REDP) in 2000 showed that fuel scarcity has created a social burden on more than 78 percent of the rural women and children, only adding to the drudgery and extra work in rural areas (Annual Progress Report 2003/2004). Loss of productivity from using dung and crop residues as fuel rather than fertiliser results in a loss of nutritional intake of the family, and of women in particular (because women eat the last and the least due to socio-cultural norms). Even though women have inadequate nutrition, they have to toil harder in agricultural and household works to meet their family's survival needs (Bhadra, 2006).

Population increases and the resultant environmental degradation have severely affected the traditional biomass-based energy sources. Because the responsibility for nearly every aspect of the domestic energy system rests squarely on the shoulders of the women, the ever-increasing fuel scarcity has a disproportionate adverse effect on women and girl children (Shakya, Tamrakar, 2004). The most obvious burden is that with rising scarcity of fuel resources, women must walk longer distances and invest a greater portion of time each day in gathering fuel wood and water. The biogas user survey has clearly revealed that the time use in fuel wood collection of the biogas non-users has increased one hour every day due to receding forest boundaries (Annual Survey of Biogas Users, 2004).

An increase in time spent in fuel wood collection implies that women may now have less time for other livelihood activities. In the end, women often have little choice but to work more, cut down on the family living standard, and try to squeeze more output and income from degraded lands, which contributes to the vicious cycle of environmental degradation and the resultant poverty. A more serious and long term implication of fuel shortage is that as the daily search for fuel wood, fodder and water becomes more difficult, children especially girls are compelled to quit school and forced to help their mothers. Girls who are held back from school to look after younger siblings and assist their mothers in household and agriculture tasks miss out on education and perpetuate the cycle of illiteracy and disempowerment of women. Women's lack of empowerment in decision-making has also resulted in the existing high fertility rate of 4.1 (Bhadra, 2004).

Besides lost opportunities and adverse inter-generational impacts, women are faced with a variety of health problems caused by "forceful switching" to inferior fuels, such as dung cakes and twigs, grasses, and leaves, which burn much less

cleanly than fuel wood. A very serious area of concern is the fact that biomass used for cooking in low-efficiency devices exposes women and children to high rates of indoor air pollution. A study conducted by the Nepal Health Research Council and others (in 2001) revealed high concentrations of harmful small particulate matter (less than 10 microns) in smoky cooking areas where fuel wood and kerosene are used as fuel (8,207 $\mu\text{g}/\text{m}^3$ and 3,414 $\mu\text{g}/\text{m}^3$ respectively) (DHS, 2001/02). As a result women and children often suffer from respiratory infections, lung diseases and eye problems. The problem is exacerbated in scarcity conditions when fuel wood becomes inaccessible and lower quality fuel is used. The 2001 Census showed disability in women to be more than that of men, and blindness in women double that of men. In addition, prolapse of the uterus is one of the major reproductive health problems of Nepalese women, attributed to the strain exerted in carrying heavy loads of fuel (Giri et al, 2001).

Women have responded to fuel wood shortages by adopting various strategies to conserve fuel: they shorten cooking times, explore less fuel-intensive cooking and food processing methods, cook fewer meals, serve cold leftovers, change the types of food eaten and purchase other fuels. Many times, the low nutritional values arising from inadequate food consumed, especially when they are pregnant, results in high maternal and infant mortality.

Male migration (both intra-national and international) has accelerated in recent days due to poverty and the armed conflict in the country. Women are held back due to socially-restricted mobility and the gender roles of caring for the elderly, sick and the children. They are now burdened with carrying out the household chores and agriculture tasks single-handedly due to the absence of adult males in the family. According to the 2001 Census, 89 percent of international migrants were men. Similarly, among internal (national) migrants, men comprised 75 percent, especially for reasons like employment, trade and education (Kayastha, Shrestha, 2003). In this context, in the absence of energy-based technology to ease their work burden, the situation of rural women has gone 'from bad to worse'.

These scenarios call for greater attention for women's needs and priorities in designing energy policies to enhance their productivity and economic empowerment and improve their livelihoods. Creating income opportunities and better access to energy services could be an important step towards achieving the Millennium Development Goals (MDGs). Addressing gender issues in energy and development is of vital importance not only for achieving Goal 3 regarding women's empowerment, but also for achieving the other MDGs. In order to eradicate poverty, improve health and enhance education, development policies and programmes must directly address gender issues, focusing on the women who are suffering the most from environmental degradation and the resultant poverty trap. Energy interventions could be the entry-points for women's empowerment, and active participation of women in all phases of energy project cycle could result in women-friendly energy technology interventions that help to ensure sustainable development.

Energy Technology Interventions

Renewable Energy Technology Interventions In Nepal

The introduction of energy efficient technologies and wide spread application of RETs started only in the 1990s, to support long-term sustainable supplies of biomass energy and help enhance the ecological balance. RETs include micro hydropower, biomass energy (biogas, briquettes, and improved cooking stoves), solar energy, and wind energy. Given the economic situation and settlement pattern of the rural communities, the application of RETs related to biomass have been more successful as compared to hydropower, solar and wind power, as they simply need diversification and less economic investment. Biogas and improved cooking stoves are two of the biomass-based RETs promoted to combat fuel wood scarcity, help maintain fragile mountain ecosystems and reduce the drudgery of women and children. The Government of Nepal has very recently recognised the importance of RETs to make biomass energy use sustainable and minimise the consequences of environment degradation. The role and importance of biomass energy was reflected in the eighth five-year plan (1992-1997) and prioritised in the ninth five-year plan (1997-2002). To support this, the Government of Nepal has initiated a subsidy policy for the promotion of biogas technology and other RETs.

Implications of RET Interventions on Gender

Efforts to address women's energy needs have in the past been targeted towards their 'practical needs' through special programmes mostly related to cooking – for example, the introduction of more efficient or less smoky stoves, or encouragement to switch to solar power or biogas for cooking. Other programmes have tried to involve women in growing trees to increase the level of firewood supply and using micro-hydro for agro-processing. Such programmes have met with mixed success.

Over the years, energy interventions have evolved to address the 'strategic interests' of women as well. An analysis of a number of energy projects, with women as the intended beneficiaries found that it was easier to mobilise uptake of the technology if it provided women with financial benefits through income generation. This is practiced by the Rural Energy Development Programme (REDP). Other factors identified as key contributors to success in various energy projects were:

- Involvement of women at all levels of the project cycle, including the design, implementation and evaluation of energy equipment intended to benefit them;
- Innovative financing and credit arrangements for access to energy equipment;
- Technical capacity building to enable women to operate and maintain unfamiliar technologies; and
- Access to markets and an effective marketing strategy for commercial activities.

Existing Constraints and Challenges

1. Policy Constraints / Gaps

The Tenth Five Year Plan (2003–2008) is the Poverty Reduction Strategy Paper (PRSP) of Nepal. In the social sector policy on women, there is no linkage made between energy and women's empowerment. The forestry and soil conservation sector policy expects to empower women and enhance their income generation through their active participation within forest user committees, especially by targeting women and *dalit* (untouchable) communities in leasehold and partnership forestry. For gender equality, the sector policy emphasises gender sensitisation and women's leadership-building to ensure access to and control over resources related to forestry and soil conservation. Furthermore, the forestry sector capacity building embraces gender concerns as well in its training programme.

The electricity development sector policy aims at improving the quality of life by increasing rural women's participation (through rural electrification users groups) in electricity generation, distribution and the use. Similarly, the environment sector policy expects to achieve gender equality through motivation for women in environment-related activities, especially through women's environmental conservation groups. However, the policy statements for both conventional and renewable energy technologies are completely "gender blind" in their situational analysis, setting of objectives, identification of strategies and hypothesising about expected outcomes. Although the sector identifies programmes and projects like biogas, solar, micro-hydro, and wind, other biomass-related technologies such as briquettes, gasification, and cogeneration, and the establishment of a 'rural energy fund', it does not identify women as beneficiaries, participants or agents of alternative energy generation and development (Bhadra, 2004).

The above policy situation reflects the fact that gender concerns are not a matter of priority for policy-makers, which is the greatest constraint/challenge for addressing the gender issues in the energy sector. Although, there are examples of mainstreaming gender in energy programmes/projects as stated above, the absence of gender mainstreaming in energy policy inhibits the sustainability and effectiveness needed for holistic development.

2. Low Coverage

Although instances of best practices have been demonstrated by various RETs, there still remains inadequate coverage of these energy technologies to meet the demand.

3. Heavy Financial Investment and Lack of Access to Credit

As of 2003/2004, 31 percent of the population still remained below the poverty line, with an income of less than \$1 a day. Under this situation, 'effective-demand for RETs', especially by the poor is understandably low due to its high investment costs. Government subsidies, though available, are also insufficient to meet the needs of the poorest of the poor. Development banks and micro-financial institutions also often do not entertain credit for these technologies due to the risks involved in recovery of the loans.

4. Traditional Mindset About Gender

Even to this day, policy-makers, programme formulators and implementers do not see the value of gender mainstreaming in energy policies and programmes. This sector still remains male-dominated and considered to be a hard sector in which it is not necessary to consider gender as an important variable. This has resulted in the absence of women in decision/policy-making right from the local level to the national level. Although there are instances of women actively participating in energy sector decision-making at the grassroots level and influencing the sustainability of the programmes/projects, the national decision/policy makers still resist recognising the importance of it and fail to incorporate these practices into national level policy making.

5. Donor Dependence

Most of the RET interventions have been conducted with donor support. This generates fear regarding long-term support for RET interventions. The current conflict situation and the political impasse have resulted in some important donors (of RETs) withdrawing their development support.

6. Armed Insurgency

The most crucial constraint/challenge in Nepal's development is the existing Maoist armed insurgency. This conflict has resulted in not only retarding development but in annihilating past achievements in development. This has affected overall development endeavours, and caused a setback in RETs as well, adding to women's woes due to daily drudgery and disempowerment.

Recommendations for National Level Actions Linking Energy and Gender to Achieve the MDGs

A. Gender Mainstreaming in Energy Policies, Planning and Decision Making Processes

Gender mainstreaming is necessary in the energy sector policy, programmes and implementation processes not only to achieve MDG 3 on gender equality and empowerment of women, but also to facilitate efforts to reduce poverty and hunger (MDG 1), achieve universal primary education (MDG 2), reduce child mortality (MDG 4), improve maternal health (MDG 5), combat HIV/AIDS, malaria and other diseases (MDG 6), and ensure environmental sustainability (MDG 7).

In addition to mainstreaming of gender in policies, programmes and implementation processes, there needs to be a 'structural adjustment' at all levels of energy sector decision-making and programme/project cycle management to include a critical mass of women (i.e., 33 percent to start with). For this, the following affirmative action measures need to be adopted:

- Reservations/quotas
- Capacity building of women
- Legal provisions for positive discrimination in favour of women
- Creating an enabling environment for women, taking into account their biological and gender roles

- Ensuring a violence-free working environment (both in the domestic sphere and the public sphere) and recognising women's rights.

B. Linking Gender and Energy for Achieving MDG 1

Currently, the household maintenance burden lies on women's shoulders in poor households, in part due to the male out-migration. In order to reduce poverty it is an imperative that women at the grassroots level are economically empowered through energy interventions fostering income generation and enhancing agricultural production. For this, it is recommended that there be 'hybridisation' of rural energy development initiatives with income-generation plans to ensure affordability for poor women. As rural energy development is costly, the fear that women will not be able to pay for it generally keeps women from accessing rural energy technology. However the 'hybridisation' of energy technology with income generation opportunities for women ensures their ability to pay. Examples of income-producing enterprises by women's groups that could be linked to energy technologies include food processing mills, power looms, forest nurseries, poultry farming and production of bee-hive briquettes.

For this, the energy sector policies need to remove the currently used demarcation between energy for domestic use and energy for enterprises and farming. This way, the energy intervention with a gender perspective will take care of both women's 'practical gender needs' of reducing time-use and drudgery in household and agricultural works and enhancing agricultural productivity, as well as taking care of women's 'strategic gender interest' in economic empowerment through income generation.

To ensure energy-related enterprise ownership by women, financing of rural energy development need to be prioritised, with channelling of credit to women's groups matched with managerial capacity building. Furthermore, it is very urgent to expand the coverage of RETs to include a larger number of poor households if an immediate and effective impact on poverty and hunger reduction is to take place.

C. Linking Gender and Energy for Achieving MDG 2

The heavy workload of mothers and the poverty of the households are two main determinants keeping girls away from school or leading to heavy absenteeism or a high failure rate and dropout rate. In this context, to achieve universal primary education, girls have to be relieved from their supplementary responsibilities for household and agricultural work. This can be addressed only through increased access to energy services to ease their mothers' work burden. Additionally, researches have shown that daughters in poor households have opportunities for education if and only if their mothers have access to income (Bhadra, 2004).

D. Linking Gender and Energy for Achieving MDG 3

Relieving women from some of their work burdens and providing them with income-generating opportunities, and ensuring girls' access to education, will contribute significantly to achieving MDG 3. Energy interventions will lead to releasing women from their heavy workload and providing

them with much desired 'leisure time'. In addition to energy services easing women's work and saving their time, mechanisation generally leads to men taking over the tasks, relieving women from some of the drudgery and time-consuming labour. Thus energy interventions not only assist women in performing their established gender roles but also result in 'transformation' of gender roles within the family. Ensuring leisure to women could also lead to women engaging in informal literacy classes so that they are more empowered to sustain and conserve their own and their family member's lives.

In addition, energy interventions can provide access to information and communication technology (ICT) services, which are also important for women's empowerment.

The goal of promoting gender equality and women's empowerment could also be addressed by promoting women's control over energy services/enterprises. In line with the government's plan of transferring state-owned enterprises to the private sector, it is recommended that priority be given to women's groups for energy enterprise ownership. The government needs to provide scholarships to female students for acquiring higher education in the energy sector, so that women can contribute in a larger way as academic experts and professionals in the energy sector.

As a critical mass of women is achieved in decision/policy-making positions at all levels (national and local) through 'affirmative action', the voices of women as a major group of stakeholders in the energy sector will be able to be heard.

E. Linking Gender and Energy for Achieving MDG 4 & MDG 5

The heavy work burden, women's lack of awareness about nutrition, women's lack of decision-making power in seeking pre-natal, peri-natal and post-natal care, lack of sexual and reproductive rights and the overall poor status of pregnant women's health all lead to high infant and child mortality rates and high maternal mortality rates. Additionally, in rural households many infants and children die due to getting burned in open fires in the hearth. The saying goes in Nepal that "a woman's heart is where the hearth is", but paradoxically mothers are unable to protect their vulnerable babies from such accidents due to their heavy workload.

Access to time and drudgery reduction by using RETs will ease women's work burden. Provision of clean energy technology will improve pregnant women's health. Access to safe energy devices for cooking and heating will save many lives of infants and children.

When women have access to 'functional literacy' education and are involved in income-generating activities, they curtail their fertility rate. Higher income and access to education provides women with more higher decision-making power and control over their own bodies. A reduced fertility rate, access to reproductive health care services and raised awareness about nutrition ensures improved maternal health and reduction in infant and child mortality.

F. Linking Gender and Energy for Achieving MDG 6

Women and girls become infected with HIV/AIDS due to trafficking for prostitution and due to being infected through

their husbands. To sensitise women/girls and to make their families aware about combating HIV/AIDS, the role of ICT is very important. Energy technology to power radio, TV, films and videos becomes very crucial for building awareness among village people and young women/girls. Energy services will ease the work burden of women living with HIV/AIDS and also ease the work burden of women taking care of sick members of their families. Empowerment of young women through educational and entrepreneurial interventions (as mentioned above) decreases trafficking in women/girls and helps them assert their sexual and reproductive rights, possibly saving them from HIV/AIDS infection.

Energy is necessary to preserve and sterilise much-needed medicines and medicine administering systems in the rural areas for combating HIV/AIDS, malaria and other infectious diseases.

G. Linking Gender and Energy for Achieving MDG 7

Biomass (especially firewood) is the energy of the poor but this is also a source that is diminishing valuable forests, emitting indoor air pollution, and accelerating adverse climate changes globally. Indoor pollution impacts on women's health, and climate change has affected women farmers' systems and productivity. Access to and utilisation of alternative energy technologies such as biogas and improved cook stoves, and improved water-mills for agro-processing and lighting, directly reduces dependency on the forests, resulting in increases in forested areas, which could be protected for maintaining biodiversity. Similarly, micro-hydro and solar energy can reduce imports of fossil fuels and reduce greenhouse gas emissions, as well as saving valuable foreign currency. Additionally, such clean technologies traded in the Clean Development Mechanism market (established under the Kyoto Protocol) can earn valuable foreign currency. The saved money through commercial energy substitution and money earned in the CDM market can be used for necessary development activities in the country, especially R&D targeted to women-friendly energy technologies.

Conclusion

The main gender issue which needs to be taken into consideration in energy policies is that when women do not have access to alternative energy technologies, they are forced to exert a greater amount of their own human energy in productive and reproductive activities, which has adverse impacts upon their health, education, and overall livelihood of their families. However, so far government policies have failed to address this link between gender, energy and economic development, especially in rural development. The argument for woman-focused energy interventions is based on the fact that

energy use and access differs between men and women. To aggravate the situation, the energy sector is male-dominated and generally takes a gender-blind approach to development. Hence, there has to be either a massive gender sensitisation of energy sector policy/decision-makers or a critical mass of women in energy sector policy/decision making positions or, better yet, both gender sensitisation and female decision-making power.

In order to pursue energy interventions that will help achieve the MDGs, donors need to be more generous in their support for gender equity and gender equality. In this respect, both the State and the donors should work towards implementing the UN Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and the Beijing Platform for Action.

References/Readings

- Alternative Energy Promotion Centre, 2003/2004. Annual Progress Report,
- Bhadra, C, 2004. Study on the Effectiveness of Programmes Targeted to Women (A Summary), Hamro Sansar (A World of Our Own), A Journal of Women's Studies, Issue 3, Women's Studies Programme, Tribhuvan University, Nepal
- Bhadra, C, 2006. Rural Women and Environmental Issues in Nepal: A Feminist Discourse. Hamro Sansar (A World of Our Own), Journal of Women's Studies, Issue 5, Women's Studies Programme, Tribhuvan University, Nepal
- Central Bureau of Statistics, 2002. National Census Nepal 2001
- Department of Health Services, Nepal Ministry of Health, 2001/02. Annual Report
- East Consult Ltd, 2004. Annual Survey of Biogas Users
- ESAP/DANIDA, 2005. A Study on Analysis of Rural Energy Programs with Respect to Their Linkages with Poverty Reduction, conducted by Govind Nepal for AEPC
- Giri, K. et al, 2001. Menopausal Symptoms in Nepal, Teaching Hospital, Tribhuvan University & UMEA University
- Kayastha and Shrestha, 2003. Housing and Household Characteristics and Family Structure, Population Monograph of Nepal, Vol. 1. CBS/NPC
- Nepal Planning Commission, 2002. Tenth Plan (2002-2007)
- Shakya, I and Nigma Tamrakar, 2004. Gender Mainstreaming in Renewable Energy Technologies: Policy Needs and Strategies, Paper presented at FAEM Conference 2004, Kathmandu Nepal
- Shrestha et al, 2004. Household Energy for Rural Women in Nepal: Reality and Potential, Paper Prepared for World Renewable Energy Congress VIII (WREC 2004)

Gender and Energy Considerations in Sustainable Development Efforts in Pakistan

Mohammad Ali Mirza

Limited access to energy services has a disproportionate effect on women, especially in rural areas, since their needs may be significantly different from those of men. Yet these needs still may not be correctly understood. Therefore, it is imperative that general awareness is created among policy-makers and other stakeholders in Pakistan on the importance of gender issues in energy resource planning, policy formulation and provision of energy services. This paper highlights these issues from the perspective of on-the-ground realities in the country and proposes workable solutions for mainstreaming gender issues to sustainable energy development.

Nationally, there has been greater attention to the linkages between gender, energy and poverty due to international declarations and agreements, especially the Millennium Development Goals, which includes a commitment to promoting gender equality and empowerment of women. However, so far there has been little national experience in terms of gender-sensitive energy projects or planning processes.

Key recommendations:

- *Factoring gender mainstreaming into national investments in energy infrastructure and technologies*
- *Promoting productive uses of energy for sustainable livelihoods*
- *Using fiscal and financial incentives to remove gender inequalities in access to energy through low interest-rate credit facilities, micro-finance, and tax-rebates for renewable, energy-efficient and alternate technologies that are low-cost and proven*
- *Developing appropriate databases and information systems related to energy and gender issues*
- *Expanding the policy advocacy, capacity building and research activities of ENERGLIA/Pakistan*

Energy Situation in Pakistan

The major constraints in sustainable energy development in Pakistan include high dependence on imported oil and a high rate of growth in use of indigenous natural gas. There has been less reliance on alternate sources of energy – mainly coal for in-situ gasification. The huge deposits of coal (185 billion tons) remain under-utilised and the share of coal in the energy supply is only 7.6%. Renewable resources of energy have large potential which has not yet been adequately tapped. Meanwhile, inefficient and wasteful use of energy resources continues to affect energy use patterns.

Since energy is an important vehicle for growth and social development, finite energy resources and a high depletion rate leads to a negative impact on sustainability. Economic activity depends on environmental resources, and the lack of efficient use of energy resources is a major environmental concern in Pakistan.

Energy and Gender Issues

In Pakistan, linkages between individuals and organisations involved in gender and energy are almost non-existent. There is a lack of relevant case studies and examples to provide

models of methodologies and implementation, as well as studies of impacts, costs and benefits. This is true even in areas where women's roles and concerns have been well-recognised – like new and renewable energy technologies, adaptation of appropriate technologies, the energy transition, health and environment, energy in small enterprises, the development of large-scale energy projects, and energy decision-making. It may further be noted that mainstream energy policy, practice, research and advocacy have seldom recognised gender issues as legitimate and relevant areas of concern. However, new government energy and environmental policies are designed to include gender mainstreaming provisions.

Because much of women's daily labor is unpaid or outside the 'formal' economy, their contribution to social and economic development continues to be undervalued. Discrimination against women in the country is a factor in their higher rates of poverty, ill health and illiteracy. It is therefore important to understand the barriers and challenges in addressing energy and gender issues.

Major challenges in this regard include the following:

- the need for greater understanding of linkages between gender, energy and development

- social biases creating gender inequality
- the need for studying and documenting the negative impacts of liberalisation and privatisation, if any, on women
- the impacts of increases in energy prices on the poor, old people and women
- women's lack of education, training and information
- constraints in energy supply decision-making processes.

Policy decisions are usually made by men, and women's opinions on energy interventions and the choice of a particular form of energy are ignored on economic and other grounds.

A greater understanding of these barriers by policy-makers can certainly help in building correct strategies for the future. In most developed economies, these sorts of challenges have been met mainly by higher levels of awareness among the stakeholders. In Pakistan, conscious efforts are needed to educate all stakeholders on energy and gender issues so that an enabling environment can be created for a reorientation of the society to address such issues.

Options for Gender-Sensitive Sustainable Energy Policies

- Develop and demonstrate linkages between gender equality and sustainable energy
- Allocate funds in the energy sector based on gender mainstreaming, making gender participation in project planning and execution a mandatory requirement
- Educate NGO's and CBO's on such issues so they can create awareness
- Increase women's knowledge on energy conservation and use of renewable sources
- Have financial support for technology adoption by communities provided by the government, funding agencies, entrepreneurs or social welfare organisations.
- Include women in energy policy and decision-making
- Ensure women's participation in the energy sector at the policy formulation, project development and project implementation stages as much as possible
- Introduce attitudinal changes to promote the efficient use of energy
- Establish effective programmes for women's education and training in the fields of health, safety and environment

The above options are based on the guidance derived from regional and international experiences and examples in other countries where deliberate attempts have been made to address sustainable energy issues.

Overview of Government Policies

While the developed countries have a good track record of formulating and implementing policies on various issues regarding the energy and environment, the developing countries have now realised the importance of devising such policies and plans suiting their specific needs and requirements. Pakistan has taken a number of initiatives in this regard.

National Energy Policy

The policy, which is still in the formulation stage, states that the Government of Pakistan will be responsible for directing the development of sustainable and renewable energy production and ensuring equitable distribution of energy services to all sections of the population.

National Energy Conservation Policy

The policy is intended to create an enabling environment for effecting a change in course from the present wasteful practices to sustainable energy and environment paths in future. Gender mainstreaming is an important component of the national energy conservation policy which will soon be taken to the Cabinet for adoption by the Government of Pakistan.

National Environment Policy

The National Environmental Policy, devised by the Ministry of Environment, recognises the role of clean environmental resources as a basic right of citizens and highlights gender mainstreaming as an essential ingredient to sustainable development. The policy was approved by the Cabinet in 2005 and is ready for implementation.

Pakistan's Poverty Reduction Strategy Paper (PRSP)

The PRSP of Pakistan is fully operationalised and as a first step its targets and indicators have been aligned with achievement of the MDGs. Within the PRSP framework, Pakistan's economy has gained significant strength. Quality of life indicators are showing visible improvement and the rising trends in poverty appear to have been arrested, and a reversal has begun to take place. In the period 1999-2004, the government spent Rs.860 billion on the development of social sectors and poverty-related programmes. During the Five Year Plan for 2005-2010, the PRSP will provide a dynamic push to the realisation of the MDGs. There will, however, be a need to systematically monitor, evaluate and document progress with respect to the relevant goals and targets as set out in various plans and strategies.

Pakistan Millennium Development Goals Report (PMDGR)

The endorsement by the Government of Pakistan of the Millennium Development Goals places an obligation on the state to lead the process of formulation and finalisation of the PMDGR, which aims to focus national debate on specific priorities of concern to the state and society. It serves as a tool to raise awareness, encourage advocacy, build alliances and renew commitments at the country level, as well as to strengthen national capacity for monitoring and reporting on the goals and targets, including MDG Goal 3 on gender equity and empowerment of women.

The Planning Commission, the Centre for Research on Poverty Reduction and Income Distribution and the United Nations Country Team (UNCT) have facilitated and supported the government in the development of the PMDGR, which is firmly based on national ownership of the process for monitoring progress towards MDGs. National efforts have been undertaken to align the long-term (by the year 2015) MDG targets with the 2005-06 targets of Pakistan's Poverty Reduction Strategy Paper (PRSP) and the indicative (2011) targets of the Ten Year Perspective Plan. The UNCT has been focusing on collaborative investments in capacity building within the country for monitoring, and for use of data for informed policy-making and programming.

MDG Goal 7 aims at ensuring environmental sustainability, and specific targets have been set and indicators identified to achieve the goal. Integrating the principles of sustainable development into country policies and programmes and reversing the loss of environmental resources is an important target set forth by the government.

While there is a need for more concerted efforts by the government and non-government agencies to achieve the above-stated targets, it is obvious that some headway has been made toward meeting these objectives. The Pakistan Environment Protection Act has been enforced and the powers of the Pakistan Environment Council have been enhanced. The National Environment Quality Standards have been revised, with the imposition of pollution charges on industry, and the media, NGOs and grassroots institutions have been engaged in the environmental causes. Plans are under way to extend the coverage of clean drinking water from 63 percent in 2001-02 to 70 percent in 2005-06 and 93 percent in 2015.

Energy efficiency is a subject of concern now, and plans to increase the proportion of renewable sources are being drawn up. Emissions of air pollutants are being gradually brought within safe limits through use of compressed natural gas and enhanced use of liquefied petroleum gas for cooking to save the forests. A plan is also under way to convert heavy loads from diesel to compressed natural gas.

The Pakistan Council for Renewable Energy Technologies (PCRET) has also developed five different models of efficient cooking stoves for use in different parts of the country. So far, 70,000 such cooking stoves have been disseminated. The usefulness of the stoves in view of their safety and economics needs to be documented and well-publicised. A provision of incentives to the communities and individuals may also be considered to promote such technologies, in rural areas in particular.

Renewable Energy

There is large potential for renewable energy in Pakistan. These resources need to be developed and popularised for sustainable development. The present contribution of renewable sources is, however, negligible in the total energy picture of Pakistan. Micro-hydro is a low-cost supply option with large potential. Wind, too, can be harnessed after proper planning. Biomass is another viable option which is not exploited to its full potential, and sustainable development of solar energy needs further scientific research.

A few renewable energy projects executed by the government are briefly described below:

- 100 Solar Homes Programme in Narian Khorian, Islamabad. This project was successfully executed and implemented by the Alternative Energy Development Board. Each of the 100 households was provided with 88 Watt solar panels, 4 LED lights, a 12 DC fan and a TV socket. In addition a solar geyser and a solar cooker have also been provided to each household. This programme of 100 Solar Homes has also been implemented for each province of the country. The market for such interventions will, however, depend on their cost effectiveness and their technology friendliness.

- A solar-wind-diesel hybrid system has been installed to provide electricity to two villages in Balochistan through M/s Empower International, New Zealand. Two other villages in Balochistan were electrified using PV systems.

- Three hundred micro-hydro plants (5 -500 KW each) have been installed on a cost-sharing basis in the hilly terrain of NWFP.

- A total of 140 micro wind turbines have been installed at various sites within Sindh and Balochistan, for providing electricity to the rural households, as well as for water pumping. The government should take the initiative and popularise the use of micro wind turbines and offer incentives to communities and individuals for their fast track development.

- Pakistan's biogas project was initiated in the early 1960s. The project failed due to lack of community interest at the experimental stage. Later, the Government of Pakistan, with the assistance of UNDP and the World Bank conducted the Household Energy Strategy Study (HESS) from 1991 to 93. Results from the HESS demand survey showed that the household sector consumed approximately 20.7 million toe, which accounts for 54 percent of total (commercial and renewable) yearly energy consumption. The potential of developing biogas technology in Pakistan was thus established. Since then 1500 family size biogas plants have been installed in Pakistan, which are meeting the domestic needs of 1500 households in the rural areas of the country. The progress has been slow due to non-involvement of communities and non-availability of equity participation. The demand is muted mainly due to lack of initiative by the government in publicising the usefulness of the project.

Other Major Renewable Energy Projects for 2005-2006

- Roshan Pakistan: National Rural Electrification Programme Renewable Energy Technologies
- Solar Homes Project in Each Province
- Solar Water Pumping & Desalination
- Solar Thermal Power Plant Technologies

In addition to the above, the Government of Pakistan decided to install a 100 MW wind power farm by June 2006. This programme was initiated by the Alternate Energy Development Board (AEBD), and involves financing through

the private sector. The government guarantees are backed through NEPRA. Once the initial target of generating 100 MW through wind energy is achieved, it will be upgraded to 700 MW by the year 2010.

Recommendations on gender and energy issues

In light of on-the-ground realities, the following recommendations are presented for follow-up actions by the policy-makers:

1. Encourage linkages between individuals and organisations involved in gender and energy by creating common platforms.
2. Integrate gender issues with energy planning and policy implementation and build gender capacity on energy issues.
3. Initiate micro-credit programmes to encourage investment in energy conservation and use of renewable and sustainable energy sources.
4. Speed up efforts to use alternate sources of energy, especially hydro power and in-situ coal gasification, and to develop renewable sources, mainly solar and wind energy.
5. For efficient energy conservation programme, linkages should be established with all relevant organisations/ departments, and NGOs.
6. Explore ways of cushioning the impact of energy price increases on vulnerable groups, including rural women.
7. Review human resources policies including hiring, recruitment and promotion, for gender equity, and increase training opportunities in the energy sector.
8. Create awareness on the energy/gender nexus, highlighting women's potential role in the energy sector.
9. Factor gender mainstreaming into the overall national economy and investments in energy infrastructure technologies and end-uses. This objective can be achieved through assigning key roles for women in the implementation of the National Policy for Development and Empowerment of Women (2002) and the National Plan of Action (NPA) for Women in accordance with the Platform adopted by Pakistan at the Fourth UN World Conference for Women in Beijing in 1995.
10. Use fiscal and financial incentives to remove gender inequalities through low interest-rate credit, micro-finance, and tax rebates for renewable, energy efficient and alternate technologies that are low-cost and shown to be effective.
11. Promote productive uses of energy for sustainable livelihoods through modern energy services.
12. Develop appropriate databases and information systems related to energy and gender issues.
13. Expand policy advocacy, capacity building and research activities of ENERGIA Pakistan.

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“Policy decisions are usually made by men, and women’s opinions on energy interventions and the choice of a particular form of energy are ignored on economic and other grounds.”

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Gender and Energy Issues Related to Sustainable Development: Sri Lanka

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This paper provides a synthesis of a wide range of issues related to gender and energy in Sri Lanka, including a discussion of how Sri Lanka could best achieve the Millennium Development Goals (MDGs) by integrating gender into energy policies, programmes and projects. The information consolidated here reflects discussions at a national stakeholder workshop held in Sri Lanka. The consultation process initiated in preparing this paper has already created an enabling and interactive environment for the stakeholders, including state agencies, to concentrate on the MDGs and contribute to the CSD 14 and 15 process.

In Sri Lanka, gender and sustainable development initiatives are handled separately from the energy sector, which is dominated by the state agency, except with regard to biomass energy. Goals for gender equity have not been considered in the context of energy for sustainable development. Broadly speaking, successful implementation of initiatives pertaining to social, economic and environmental development and achievement of the MDGs, individually and collectively, depends heavily on expanding access to clean and affordable energy services to the poor. However, persistent gaps between men and women that have continued over decades obstruct success in achieving equality and economic advancement. The relationship between energy and gender extends beyond gender-specific energy needs and involvement of women in activities in the energy system. It also encompasses the contributions of men and women to an integrated process where their experience, knowledge, and skills are considered as investments in sustainability.

Key recommendations:

- *Promotion of gender conscious energy policies*
- *Gender-integrated project planning, responsive to women's needs, that focuses on decentralised planning and 'engendering' the development of energy technologies*
- *Greater participation of women in energy decision-making*
- *Attention to energy-related financial services for women*
- *Development of the biomass energy sector in a more sustainable way, with women playing a leading role as a key stakeholder group, building on their custodianship over energy resources and their practical experience.*

The Energy and Gender Situation in Sri Lanka

The major sources of energy in Sri Lanka include biomass, petroleum and hydro-electricity, with 56.6% of the energy consumption in the household and commercial sector, 24.6% in the transport sector and 19% in the industrial sector.

In 2002, biomass provided about 50% of the primary energy, about 84% of which was for domestic and commercial uses, and the rest for the industrial sector. Nearly 90% of the population uses biomass in the form of fuel wood and agro-residues for cooking. The annual consumption of fuel wood is nearly 10 million tonnes, supplied primarily from non-forest production sources. Around 26% is provided from home gardens, 19% from coconut plantations, 19% from croplands, 7% from natural forests, 7% from rubber plantations, 4% from forest plantations, 3% as processing residues and the remaining 14% from other sources.

Petroleum provided around 42% of the primary energy used in 2002. The transport sector accounts for nearly 72% of petroleum consumption, with 11% used by industry and 17% by households, the commercial sector and other users.

Petroleum products are also used for electricity generation and in the agriculture sector. Sri Lanka depends on imported petroleum fuels, including both crude oil and refined products. LPG is also largely imported in Sri Lanka, and it is used to satisfy nearly 12% of the cooking energy requirements. Kerosene is mainly used for household lighting, and in some areas for water pumping as well.

Electricity use for industrial purposes is rather low, accounting for 12 percent of the total, while 88% is used in household, commercial and other purposes. The national grid supplies electricity for nearly 65% of the households, and around 31,000 households are served by off-grid systems. Electricity is largely used for lighting and for household appliances.

In 2002, 69% of the energy consumed by the industrial sector was derived from biomass, 12% from electricity, and 16% from petroleum products. Similarly, the energy consumed by households, the commercial sector and other users was 61% biomass, 11% petroleum products, and 8% electricity.

The demand for better energy options and access to clean

energy sources and technology stems from the detrimental effects of conventional technology, and the energy crisis resulting from continuously increasing fossil fuel prices. Affordable energy services are needed for sustainable development, including for irrigation, drinking water supplies and productive uses. The long-term electricity generation expansion plan of the Ceylon Electricity Board calls for enhancement of thermal capacity to about 54% by 2010 and to 67% by the year 2017. In 2003, the thermal plants satisfied nearly 49% of the energy demand and are expected to supply 76 percent by 2017. It has also been estimated that around 20% of the households will have no access to the grid electricity supply system; therefore, the promotion of off-grid supply system through renewable energy development is essential for providing energy services for those who are in disadvantaged locations/areas and not included in the grid supply system.

The Ministry of Power and Energy is the state agency responsible for policy formulation and for the matters pertaining to energy development in Sri Lanka (including the Energy Conservation Fund). Recent efforts to integrate energy into rural development and national actions to implement sustainable development goals have opened the door to gender training and awareness building. The development of policies on renewable energy, decentralisation, and community involvement have created new opportunities to integrate gender concerns. The silent and unacknowledged roles played by women have become more visible through integrated community-based energy development.

The roles played by men and women in the energy system in

Sri Lanka vary by the type of energy involved and the technology used, and according to the end use. There is a clear difference between biomass energy and modern energy types in regard to women's engagement. The modern energy types are controlled by the government and therefore the poor, and women in particular, are seen only as the end users. (See Table 1.)

Key Energy and Gender Issues

The country report on the Millennium Development Goals (UNDP, 2005) provides a detailed account of the achievements made through various pathways. Past experiences and achievements reveal three key factors. The first is that the areas showing progressive changes are associated with state policies driven by welfare-oriented initiatives, such as health and education. The second is that development pathways have not integrated energy with gender goals and targets. The third is that gender equality has not been integrated into mainstream development and as a result it is confined to an isolated sector.

Lack of access to affordable and modern energy services for the poor, and particularly for women, directly and indirectly affects the country's progress in achieving sustainable development goals and gender equality. Sri Lanka has not been successful in promoting women's equal access to and participation in decision-making at all levels on the basis of equality with men, as called for in the Johannesburg Plan of Implementation. "How would women's involvement in decision-making and the integration of gender and energy considerations help deal with the associated issues" is the question at hand.

TABLE 1

Key features in women's engagement

ENERGY TYPE	ENERGY SUPPLY	CONSUMPTION	MANAGEMENT
Biomass	<ul style="list-style-type: none"> Producers & suppliers of biomass fuel for subsistence; Promoters of non-forest supply sources; Customary users of resources mostly on de-facto terms; Mediators of links between energy sources and end use; Key producers of biomass feedstock for energy plants. 	<ul style="list-style-type: none"> Generating cooking energy services through combustion; Energy technology for conservation and efficiency; Users of energy services for cottage industry and food processing; Energy services for welfare & well being; Performers of subsistence related tasks; Recipients of remuneration for supplying biomass feedstock for energy plants; Consumers of off-grid electricity generated in biomass energy plants. 	<ul style="list-style-type: none"> Contributors of their capital (knowledge, time, labour and experience) for integrating biomass into livelihood base – the land; Custodians of supply sources; Conventional managers and decision-makers in regulating; Key stakeholders using efficient conservation technology; Decision-makers in local supply, energy generation & distribution.
Petroleum/ fossil fuel	<ul style="list-style-type: none"> Recipients of the delivery handled by the state agency. 	<ul style="list-style-type: none"> Users of services, primarily for transport; Small segment of users of LPG for cooking; Users of kerosene for lighting; 	<ul style="list-style-type: none"> End users affected by external governance.
Electricity	<ul style="list-style-type: none"> Contributors to energy resources through land-based activities. 	<ul style="list-style-type: none"> Users of energy services (lighting & other facilities); Users of mechanised equipments. 	<ul style="list-style-type: none"> End users affected by external governance.

1. Poverty eradication measures linked with the state policy on providing subsidies for poor families have not taken into account the role of energy in development and empowerment, or the gendered nature of poverty. The role of energy and financial services for economic advancement of the deprived areas and the sectors needs broader understanding to provide concrete solutions.

2. Lack of affordable, modern and clean energy is a key issue affecting energy use for production and enterprise development, and a constraint affecting women's economic activities because they have to spend long hours on work related to providing and converting solid biomass into consumable energy.

3. Nutritional deficiencies, particularly child and maternal malnutrition, are key issues addressed by gender-specific targets. Energy is needed for promoting production, enhancing access to food and nutritional ingredients through women's economic activity, and increasing women's share of earned income.

4. Attention to women-specific energy needs is a priority for addressing low functional literacy in disadvantaged locations and communities, which is an impediment to empowerment, affecting women's capacity and confidence to face the challenges in their lives.

5. Reduced gender disparity in education has not contributed to transforming traditional gender divisions of labour, or enhancing women's share of earned income, formal sector employment, or engagement in political decision-making. Enhanced access to affordable modern energy types for women has the potential to create enabling opportunities to establish enterprises according to their desires and grasp economic opportunities on equal terms with men.

6. Disparities with regard to gender involvement in making decisions on clean energy supply, technology, use and management are quite wide. Women's lack of capacity to secure and spend money on clean energy leads them to spend their productive labour on gathering and portaging fuel wood from freely available sources, despite the detrimental effects on their health and the economy. Women lack the financial capacity to get access to energy technologies for lighting, household appliances, motorised pumps, and equipment for grinding and crushing grains. Enhanced access to transportation is also essential.

7. The health-related Millennium Development Goals – reducing child mortality, maternal mortality, HIV/AIDS, malaria and other diseases – bear a strong relationship to women's income poverty, energy poverty and marginalisation.

8. The conditions under which women continue their roles as providers of biomass for generating cooking energy are critical to issues of national importance, such as management of energy resources, ownership of natural resources, distribution of fuels, technology choices, and housing construction, and

have an adverse effect on many other aspects of women's lives, like income, nutrition, and time availability.

9. The state policy on enhancing access to clean and modern energy, particularly the grid electricity supply for rural areas and promotion of off-grid supply for the areas that are not covered through the national grid, excludes women's multiple energy needs. Improvements in women's economic prospects and empowerment are crucial for expanded use of energy for income and profit.

10. The national policy on energy has maintained conventional energy consumption patterns, characterised by the continuously increasing prices of petroleum products, and the unreliability of the hydro electricity supply. The potential role of renewable energy in providing strategic solutions to gender issues in the domestic sector remains unconsidered.

11. Environmental degradation and deforestation due to expanded human activity, and increasing events of droughts and natural disasters like flood and landslides, are key issues with implications for energy, gender and the environment. Modern biomass energy development has the potential to involve women as key stakeholders in addressing these issues. Integration of their capacities for the sustainable management of energy enterprises for social, economic and environmental achievements is an important area for change in the paradigm of energy development. Community-based energy projects are important cases for demonstration.

12. Lack of investments or financial services for women is a result of men's dominance in decisions about energy enterprises. Financing for women to gain access to clean energy, and securing modern energy for women's productive enterprises are equally important.

13. Special targets are crucial for reducing regional disparities within the country with regard to energy access and development, and gender-specific gaps. What has been achieved in terms of expanding energy services so far cannot be extended easily to other areas without decentralised local agendas and targets, for which gender disaggregated data is essential.

14. Energy is needed for promoting the use of information technology and creating new partnerships and opportunities, especially for women in disadvantaged locations and positions. The socialisation and localisation of energy technology suffers from lack of gender sensitivity. Gender conscious energy technology planning and integrating of financial services for promoting technology and its extension is essential.

Recommendations for National Level Action

The Sri Lankan situation regarding gender and energy is rather complex. The country has made great strides in reducing mortality and enhancing education enrolment of boys and girls. Yet, there has been slow progress in reducing poverty, unemployment, and malnutrition, or controlling HIV/AIDS

and other diseases. Improved access to energy has facilitated the development process, but only in some areas, particularly in the urban areas. The correlations between poverty, deprivation and energy access are quite apparent. The areas of the country and the social sectors that have no access to energy services are the ones characterised by backwardness.

Gender-conscious strategies will make important contributions in the process of further implementation of sustainable development goals and in realisation of the MDGs.

National attention is needed in four crucial areas: promotion of gender conscious energy policies, programmes and projects that are directly responsive to women's energy needs; increased women's participation in energy decision-making, including in policy formulation and developing energy technology for sustainable development; gender integrated project planning; and inclusion of women's energy needs as a national priority.

Key Principles

- Gender equality enabling women to play their roles in implementing MDGs – for which energy access is an essential facilitator.
- Following a road map for furthering the implementation of integrated gender and energy activities – with measurable outputs.
- Policy instruments and decentralised regional strategic plans incorporating gender and energy strategies and referring to a baseline using gender disaggregated data.

Conclusion

This report provides a brief analysis of the background situation regarding gender and energy issues in sustainable development in Sri Lanka, with the expectation that the issues and recommendations will enrich the discussions during CSD 14 and 15. From the perspectives of women, the important concern is how to have an impact on the existing energy paradigm, which is

controlled with the state authority, where decisions are made focusing on profit, technology, and supply factors. The issues identified in this report indicate the need for a paradigm shift to take into account the social orientation of energy, which would provide an ideal framework for gender analysis in energy planning and negotiations, and a platform for lobbying for women's needs and empowerment. Energy has a transitional effect in poverty eradication, affecting all three pillars of sustainable development – social, economic and the environmental objectives. Energy access for women, through programmes designed specially to focus on gender or more broadly on communities, has been used by women as a blessed opportunity to build capacity, confidence and self-reliance, through which women can grasp opportunities to make decisions.

References/Readings

- Department of Census and Statistics, Sri Lanka, 2005. Selected Millennium Development Goal Indicators,
- Energy Conservation Fund, 2005. Report of the Inter-Ministerial Working Committee on Dendro Thermal Technology
- The World Bank, 2005. Attaining the Millennium Development Goals in Sri Lanka: How likely and what will it take to reduce poverty, child mortality and malnutrition, and to increase school enrolment and completion? Human Development Unit, South Asia Region
- UNDP, 2005. The Millennium Development Goals Country Report - Sri Lanka. UNDP Office, Colombo, Sri Lanka
- Wickramasinghe, A, et al, 2005. National Strategy on the Integration of Energy and Rural Development Policies and Programmes, National Report Submitted to UNESCAP, Bangkok, Thailand
- Wickramasinghe, A, 2006. Case Study on Micro-Finance: Success Cases, Matale Regional Economic Advancement Project (awaiting publication)

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“The conditions under which women continue their roles as providers of biomass for generating cooking energy are critical to issues of national importance, such as management of energy resources, ownership of natural resources, distribution of fuels, technology choices, and housing construction.”

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Gender and Energy in Vietnam

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This paper reviews achievements and challenges related to mainstreaming of gender into energy policies and discussions in Vietnam. It was prepared for CSD 15 and incorporates the views and ideas of many different stakeholders, including government bodies, non-government organisations, civil society groups and energy agencies.

There are still many obstacles to gender sensitivity in planning and policy-making in Vietnam. It is particularly troubling that school text books still reinforce traditional domestic and care-taking roles for women, which limits their ambitions and economic opportunities. Specific attention to women's energy needs and desires has been limited, and mainstreaming of gender issues into energy programmes needs to be boosted within all relevant bodies and government branches.

Household energy accounts for 60% of the country's total energy usage and, for the most part, it is women and children who are involved in family energy-related activities, including cooking, and gathering and processing fuel. About 80% of the daily cooking is done by women, with the majority of women spending 3 to 4 hours per day preparing meals. Most women use fuel wood they collect themselves from forests or hillsides. They have little access to other fuels or improved cook stoves. Moreover, they also have little access to the money or decision-making power needed to acquire more efficient, energy-saving equipment.

Key recommendations:

- *Integrate energy initiatives with income-generating activities and poverty alleviation, in line with the Millennium Development Goals and Vietnam's own development objectives.*
- *Provide gender sensitivity training for policy-makers and managers in energy-related fields, as well as in education and agriculture programmes, and implement a national survey on gender and energy to provide research and documentation for policy-makers, planners, and local authorities.*
- *Research gender divisions in education and employment to seek ways of boosting women's scholarship and participation in research and non-traditional jobs.*
- *Include women in the planning and development of local energy programmes using available energy sources such as solar, wind, hydro-power, biogas, and biomass in a sustainable manner.*
- *Provide loans for families to improve their energy and economic status, with special attention to poor women.*

Energy Resources in Vietnam

In recognition of the importance of energy to the socio-economic development of the country, the government of Vietnam has made many significant efforts to implement energy programmes. The most outstanding programme is the rural electrification initiative. According to the Electricity Company of Vietnam (which is controlled by the Ministry of Industry) the national power grid covers 100% of the districts in the country, about 90% of the communes and approximately 80% of households. In non-grid areas, renewable energies have been utilised in different forms.

Vietnam is richly endowed with renewable energy resources, which have been exploited and used over the past two decades. By now, some technologies have reached commercial levels, such as biomass and small hydropower for electricity generation. Others, such as wind power and solar energy, are still being researched and developed.

Vietnam's technical potential for small hydropower is 1600-2000 MW, mainly in the north and central areas. By 2004, there were about 60MW of grid-connected mini-hydro

installed in 48 sites, with capacities ranging from 100 to 7,500 kW. Since 2004, about 50-60 grid-connected small hydro power plants were built or prepared for construction. Over 300 community-based small hydro systems with a total capacity of 70MW have been installed. Individual systems ranging from 5 to 200 kW are mostly installed in north and central Vietnam.

Biomass energy resources, such as wood fuel, agricultural residues and biogas, are mainly used for generating heat and electricity. The main biomass resources for generating electricity are sugarcane bagasse and rice husks. Together they have the potential of up to 400 MW: 250 MW from bagasse from sugar mills and 150 MW from rice husks. Forty-two existing sugar mills are using residues from sugar cane for power generation.

Regarding solar energy, Vietnam has stable high solar radiation in the southern and central regions, but it fluctuates by season in the northern region. Average solar radiation in the south and central areas is about 5 kWh per m² per day, while solar insolation in the north fluctuates between 2.4 and 5.6 kWh per m² per day.

Women's Roles

Vietnamese women account for more than 50% of the nation's population and 52% of the labour force. They play an important part in every sector of society, including agriculture, industry, business and art. Since the economic reform, the rate of women taking part in agricultural activities, such as plantation work, forestry and husbandry, has significantly increased.

The education rate of workers in the agricultural sector is below 10%, with an even lower rate for women. The proportion of girls attending primary schools is equal to that for boys, but the numbers are much lower in high schools, and for poor areas and ethnic minorities. The gender patterns presented in school text books provide either inadequate knowledge or a biased understanding of gender to pupils, which affects their views about themselves and others. Once gender patterns are presented in schoolbooks, these limit the pupils' development.

A study of school books showed that these texts promote the view that girls and women must generally have traditional jobs at home or in paddy fields. Beyond that, they might also be able to become doctors or nurses, as their duty is to care for others. Girls and women are described as timid, emotional and hard working, dependent on others' help and inferior to men. These views negatively affect women's access to different activities in life.

On the contrary, the roles of boys and men are shown to include less traditional jobs, and more expansive opportunities for both work and relaxation in the community and society. They are often scholars, leaders, explorers and skilled workers. Men are more often seen as strong, independent, brain-oriented and skilful, with high self-esteem and respect from others.

Key Energy and Gender Issues Identified

Energy Consumption Patterns

Within the energy sector, women are producers, processors and also important end users. Approximately 60% of fuel gatherers are women. They are also the first ones to bear the burdens of energy shortages.

According to a survey conducted in 2000 by the Vietnam Women's Union in six provinces of Vietnam, 80% of the daily cooking is done by women, with the majority of women spending 3 to 4 hours per day preparing meals. Statistics on energy consumption show that energy used for cooking and daily activities accounts for 60% of the country's total energy usage. Traditional cook stoves which are simple, primitive and energy-consuming have a very low efficiency, around 8-13%.

Another survey conducted by the Vietnam Women's Union in 2001 showed that 91% of families use traditional tripod cook stoves. The survey was conducted throughout five provinces representing different regions and areas in Vietnam, and included 1,200 households. Women and children were found to devote the most time to cooking and gathering and processing fire wood, and therefore were most vulnerable to related health hazards. In addition, prolonged time searching for cooking fuel and cooking with traditional stoves limits the time available for women to learn new things or take care of themselves and their families.

The survey showed that over 78% of families used fuel wood for daily cooking, 18% used agricultural residues, and 1%

used coal. Within families, wives travelled the most to collect fuel (64.6%), followed by children (16.1%), and husbands (13.3%), with 24% of them going more than 5 km. About 44% of the fuel collected was from the forest, 20% from hillsides, and 15% from gardens. Over 66% of those responding said they were very tired from gathering fuel.

Beside collecting fuel, almost one third of families bought additional fuel, with most of them paying between \$2-\$5 per month. After gathering or buying fuel, more than a quarter of those responding spent 2 hours a day or more to process it before using it.

Women need better cooking technologies, but currently most women have no ability to change to a better method of cooking. They are accustomed to cooking with tripod stoves without realizing that there are several kinds of improved cook stoves that could help them save time and reduce their costs for cooking.

Economic Power and Access to Financing

Women should be the main focus for energy conservation activities, since their work consumes most of the energy used by the family. However, even when they are aware of energy options, they have little access to financing for better equipment. Traditional social norms have determined that a bigger portion of the financial decisions are taken by men than by women, as it is thought that greater results can be expected from men. Activities such as negotiating with banks and credit organisations are considered better suited for men.

Vietnamese women tend to meet more difficulties in accessing official credit sources. They generally have to use unofficial lenders offering higher interest rates and limited amounts of money. A district survey has shown that women take out only 2.5% of the total loans provided by the Vietnam Bank for Agriculture and Rural Development (VBARD). Accessing any kind of loan is difficult for poor people, and the prospects are worse for poor women. Given this situation, women find it hard to have enough money to cover the costs of buying new energy-saving tools or applying energy-conservative technologies.

Gender divisions in the labour market tend to restrict women from reaching higher positions and incomes. Female-focused fields have lower salaries and inferior social status. For example, in the teaching profession, there are many women teachers in primary schools, while most of the teachers in high schools and colleges are men. There are even lower percentages of women in directorial and managerial positions. In every field, men gain higher incomes with better prestige than women.

Less participation in training and education in technical areas keeps women away from potential high-tech jobs, including ones in energy fields. As a result, there are few women participating in drafting energy policies or contributing to the energy conservation process.

Recommendations

These recommendations are directed to national government offices, policy-makers, legislative implementers, and gender and energy planners.

Actions to allow women to reach better positions and status in both their families and society, and to have more opportunities to take part in all fields of life and work:

- Provide gender awareness training for members of the Text Book Appraisal Council and include descriptions of gender patterns as one of the assessed criteria for text books. Adjust lectures and text books to reflect positive images of gender, and enhance gender awareness and sensitivity levels of educational policy makers, teachers and students.

- Conduct research on gender separation in education, jobs and other fields and the effects of gender separation on the labour market. Seek ways of boosting women's participation in research and non-traditional jobs.

- Undertake gender awareness training for agricultural policy makers and managers of agricultural promotion staff. Strengthen women's participation in agricultural promotion trainings, and ensure that women benefit from technology transfer programmes.

- Integrate gender awareness and methods of participatory assessment into the curriculum of agriculture and forestry universities, and increase the number of female students in these universities by offering incentives such as scholarships and teaching practice.

Specific energy-related actions:

- Promote more gender sensitive energy policies through national plans and policies that consider benefits to both men and women from the very beginning of the decision-making process.

- Mainstream gender into training for energy policy makers, practitioners, and implementers to raise their awareness on gender issues relating to energy.

- Develop local energy programmes using solar, wind, hydro-power energy, biogas, and biomass resources in a sustainable manner. Women should be involved in planning, implementing and monitoring these programmes, especially energy conservation and efficiency improvements.

- Integrate energy initiatives with other income generating activities, and hunger and poverty alleviation programmes, in line with the Millennium Development Goals and Vietnam's own development objectives. Provide loans for families to improve their energy and economic status, with special attention to poor women.

- Implement a national survey on gender and energy to provide research and documentation for policy makers, planners, and local authorities.

Conclusion

With a glorious tradition, Vietnamese women have been playing important parts in every field of life, despite living under unfair gender-related circumstances. Gender relations are critical aspects of culture, as they shape daily lives in families, communities and work places. Women have less decisive power, fewer resources to use and less influence in determining social matters, even in their personal lives.

Matters relating to cooking and use of energy are typical examples of this situation. At home, women take care of most of the cooking, gathering and buying of fuel, and processing of fuel. They are therefore most vulnerable to energy shortages. Thus, they should be the first to be thought about in the process of improvement of energy policies for the country, as well as the development of Vietnam society.



“Less participation in training and education in technical areas keeps women away from potential high-tech jobs, including ones in energy fields. As a result, there are few women participating in drafting energy policies or contributing to the energy conservation process.”



Annexes



An improved cook stove fitted with a chimney is used in a rural household in Bolivia.
Credit: EASE project, managed by ETC Foundation, 2006

Annex 1

Priorities for Action for Women as a Major Group at CSD 15

Official document distributed by the Secretariat for the UN Commission on Sustainable Development E/CN.17/2007/, www.un.org/esa/sustdev/csd/csd15/documents/csd15-mg-pfa.pdf.

A. Integrating a gender perspective into energy planning, decision-making, management and implementation

1. Energy policies, legislation, and programmes should recognize that women and men have different social and economic roles, and should place more emphasis on domestic uses and small-scale agricultural and informal income-generating activities where women predominate.

2. Gender mainstreaming approaches should be used to ensure that concerns of both men and women are considered in planning and policy-making. Government officials should receive training on how to integrate gender issues into their work.

3. Disaggregated data should be used by governments to identify and quantify different energy needs of women and men, design and implement policies and programmes, and evaluate results.

4. Gender audits and needs assessments should be used to ensure that energy policies focus less on supply targets and more on demand-side considerations, in order to better reflect the needs of women and poor households, and also to help integrate energy actions with national poverty reduction plans and development initiatives on health, education, agriculture and job creation.

5. Gender budgeting should be applied to public energy expenditures and investment programmes in order to make targeting of policies and resources more equitable.

B. Enhancing the roles and status of women, as participants and agents of change.

6. Since energy ministries and institutions are generally male-dominated, governments should adopt affirmative action programmes to ensure that more qualified women are trained and hired for policy-making positions.

7. Participatory processes should be used to actively involve women in the design, selection, promotion and use of energy resources and technologies.

8. Training programmes should encourage women to become energy technicians and producers by including machine operation and maintenance, as well as other technical and business skills.

9. Given the gender imbalances in the CSD bureau, panels, and delegations, the CSD should prioritise increasing women's participation and representation.

C. Providing access for all to reliable, affordable energy services

10. Without modern energy services, women and girls must gather fuel and carry water for household needs, and cook over smoky indoor fires. Increased investments in basic energy infrastructure are needed to reduce women's burdens and meet the Millennium Development Goals, particularly in developing countries and countries in transition. Governments should address women's access to energy in Poverty Reduction Strategy Papers and national sustainable development plans.

11. Increased access to energy for women should be coupled with employment and enterprise development opportunities, since most poor women in developing countries cannot afford to pay for new equipment unless it can be used to generate income or reduce fuel costs.

12. Improved energy financing options should be made available to women for income-generating activities, since women face particular constraints in obtaining bank credit or owning land and assets that could be used for collateral.

D. Improving health by reducing indoor air pollution from traditional fuel use

13. Governments should focus on expanding access to cleaner burning and more efficient cooking fuels (such as LPG, kerosene, butane, natural gas) especially in small containers that women can afford and carry, and should explore investments in local production of biofuels for use in meeting the energy needs of the poor in an environmentally friendly way. Governments should commit themselves to halve the percentage of people cooking with traditional biomass fuels by 2015.

14. Indoor air pollution should be reduced through cleaner-burning stoves, and solar cookers and hot water heaters, as well as vents, windows, stove hoods, and chimneys for better ventilation.

E. Taking action on climate change and ensuring gender-sensitivity in related policies and programs

15. Since global warming will disproportionately affect poor women, governments and institutions should conduct gender impact analyses to identify gender-specific needs and protection measures related to floods, droughts, and other disasters. Information is also needed on connections between gender-based resource use patterns and environmental impacts, such as deforestation due to inappropriate agricultural practices or weak tenure rights.

16. Women play a critical role in mitigating and adapting to environmental changes. Governments and institutions at all levels should involve women in climate change decision-making and take advantage of their particular skills in natural resource management and conflict prevention.

17. Without secure access to and control over natural resources, women are less able to cope with climate change. Thus, as part of their climate change activities, governments and institutions should work closely with women's organizations to improve women's access to resources.

18. Governments should work to ensure international cooperation and joint action on implementation of the UNFCCC and Kyoto Protocol. Developed countries that are the major sources of greenhouse emissions should take the lead, and non-binding agreements should be discouraged.

F. Ensuring accountability for sustainable industrial development

19. Developed countries currently have the most unsustainable consumption and production rates and should use awareness campaigns, legal requirements, and economic incentives to promote renewable energy and energy efficiency.

20. Rather than depending on private sector involvement and market-driven approaches, the CSD and governments should adopt rights-based strategies designed to directly benefit those most affected by energy poverty and the impacts of climate change.

G. Alternative energy sources that do not endanger the environment or health

21. Governments and other institutions should promote investments in and raise awareness about alternative energy technologies that are readily available and have tremendous potential for supporting economic development with low greenhouse gas emissions. Appropriate alternative energy technologies include wind and solar systems, small hydro-electric generators, modern biofuel systems, and energy efficiency mechanisms.

22. Governments should work towards reducing reliance on fossil fuels. In addition to contributing to global warming, combustion of fossil fuels produces air pollution that negatively impacts human health, particularly in poor and disadvantaged communities. Extraction and transportation of coal and oil also negatively impacts communities by destroying land and degrading water resources.

23. Given the wide-reaching and dangerous impacts of nuclear accidents and radioactive nuclear wastes, environmental degradation due to uranium mining, and health risks from nuclear energy, the CSD and governments should work to ensure that nuclear energy sources are phased out.

Annex 2

Key Statements on Gender and Energy at CSD 14

(from the CSD Secretariat website, unless otherwise noted)

On the first day of CSD 14, the **Chair's Introductory Statement** highlighted "the social dimensions of access to energy" and "its effects on improving living standards for women and children". The European Union expressed the view that gender-related conditions associated with energy sourcing and consumption should form the basis for energy-related interventions and that "women are strong agents for development and should constitute the starting point for any intervention when appropriate." **South Africa speaking on behalf of the G-77 and China** stated that "the empowerment of women and their participation in decision-making should remain on the agenda of the international community. Citing high death rates for women and children due to indoor air pollution, the **World Health Organization** called upon the CSD to support targets for availability of improved cooking stoves and replacement of traditional biomass cooking fuels with cleaner fuels such as LPG and ethanol.

Later, during the discussion on gender and access to energy, **Norway** announced that "gender and energy are priority areas for Norwegian development cooperation", underlining needs for more research and data gathering, and capacity-building and technical training for women. The United States offered a case study from Rwanda on improving gender equality in energy sector decision-making, citing the lesson that "incorporating gender-specific energy needs and issues into the provision of energy services to communities is critical to improved health, increased incomes, enhanced educational opportunities, and more equitable and sustainable development outcomes."

www.state.gov/g/oes/rls/or/2006/65709.htm

The **Dominican Republic** also acknowledged the needs of women energy users in rural areas and called for capacity building for women.

During the May 2 continuation of the thematic discussion on access to energy, the **Netherlands** announced its target of providing 10 million people with access to modern energy services (for cooking and electricity) by 2015, noting that the target would have a special focus on women, since they suffer the most from lack of access and provide energy services for whole households.

In the regional discussion on Asia and the Pacific, **Fiji** emphasised the need for mainstreaming gender into national energy policies, participatory methods of data collection on gender and energy, increased awareness raising, training and capacity building, and appropriate financing mechanisms (including micro-credits).

At the May 3 Multi-stakeholder Dialogue, **Australia** and the **European Union** supported the contribution by Women, recognising that gender equality is not just a women's issue, and that there are a number of barriers remaining to achieving gender equality.

On May 4, in the discussion on industrial development for poverty eradication, **South Africa** suggested key considerations for the policy session, including capacity building and training programmes with particular attention to women, and enhancing the role of women in decision-making. The European Union urged support for women's entrepreneurship through legal rights to inheritance, land tenure, and access to financing.

Chair's Summary of Part 1

The CSD Chair and Secretariat prepared a summary of the first part of the CSD 14 session – before the High-Level Segment with the ministers. This summary drew on the background Report of the Secretary-General and reflected points made in the panel presentations and statements during the opening session and the thematic and regional discussions. www.un.org/esa/sustdev/csd/csd14/documents/chairSummaryPart1.pdf

In the **Chair's Summary Part 1**, many of the references to women mentioned the importance of improved energy services for cooking and heating to reduce indoor air pollution and improve health, education and employment opportunities for women. See, for example, paragraphs 21, 60, 61, 75, 153, and 172.

Other sections emphasized the need for collecting gender disaggregated data to evaluate the impacts of energy projects (paragraphs 31 and 215) and assessing projects' social benefits in terms of women's health, education and income opportunities (paragraph 78).

There was particular mention of the importance of greater involvement of women in developing energy policies and designing and implementing energy projects (paragraphs 77, 201, 238), and the need to put women at the center of decision-making and management (154).

In addition, the summary included references to the need for energy to support income generating opportunities for women (paragraphs 78 and 154), as well as micro-finance programs to provide energy for women's enterprises (paragraph 120). Women's need for improved education, training and awareness of energy options was also noted (paragraphs 31 and 143).

High-Level Segment

At the opening of the High-Level Segment, **Secretary-General Kofi Annan** mentioned the "immense opportunity cost of the many hours spent foraging for wood, mainly by women." **Austria, on behalf of the European Union**, stated that CSD 15, among other priorities, will need to address the heavy toll of indoor air pollution on human health in developing countries, especially on women and children, and said it would be vital to use the time before CSD 15 to seek input for the policy session from government, major groups and relevant international institutions and networks. **Belgium** suggested that cross-cutting issues, including gender, be addressed in a separate section in the CSD results each time, starting with the Chair's Summary of CSD 14 Part 2.

During the Multi-stakeholder Dialogue with Ministers, Women presented an eight-point action plan, and the **Dominican Republic** suggested that these "great eight action points" be integrated into the Chair's Summary Part 2 as part of the plan for moving forward.

The points covered in the **Action Plan presented by Women** included: ensuring women's access to clean, affordable energy sources; promoting renewable energy sources; guaranteeing women's effective participation in decision-making; developing capacities of energy institutions to integrate gender perspectives; building individual capabilities of women with regard to energy technologies and businesses; ensuring that conservation and environmentally-friendly approaches are central to the provision of energy services; utilising gender disaggregated data and gender analysis at each step of energy policy and project development and implementation; and incorporating attention to women's needs into climate change mitigation and adaptation interventions. The full text is on the CSD Secretariat's website.

The next day, **Ghana** presented its list of concerns to be addressed at next year's preparatory meeting and CSD 15, including support for rural women as entrepreneurs, and as providers of new energy services, with technical training, information and skills to operate energy technologies and businesses.

At the end of CSD 14, the **Women's Closing Statement** included commitments to work together with governments to raise awareness about gender sensitive energy policies, programmes and projects; provide leadership for actions that recognise the critical role that women play in the energy sector (as actors, not just recipients) so as to increase women's access to energy services and livelihood opportunities; participate in innovative financing initiatives; provide expertise for gender budgeting and auditing of energy policies and programmes (including Poverty Reduction Strategy Plans); and strengthen the capacity of women to participate in energy policies, decision-making and implementation. The statement concluded with a hope that CSD 15 would have more women in the organising Bureau, better gender balance on the expert panels, and more women on the government delegations.

The Chair's Summary of the High-Level Segment reflected many of the strategic interventions and concerns raised by the Women's Major Group and government delegates. References were made to:

- improving access to modern energy services, particularly for poor women and children (paragraph 8);
- improving capacities and raising awareness about energy options, especially among women (paragraph 8);
- involving women at all level of energy decision-making, management and implementation (paragraph 8);
- addressing the serious health threats to poor women and children in developing countries caused by indoor air pollution resulting from traditional cooking methods (paragraph 11); and
- involving the major groups, especially women and youth, in CSD 15 policy decisions (paragraph 30).

In the section on 'Responding to challenges: the way forward', the Chair's Summary included the following issues among the challenges to be addressed in the course of the CSD 15 Policy Year:

- enhancing the roles and status of women, as participants and agents of change (paragraph 36(g));
- integrating a gender perspective in planning, decision-making, management and implementation (paragraph 36 g));
- providing access for all to reliable, affordable energy services, giving particular attention to the rural and urban poor, especially women, in order to meet basic human needs and the MDGs (paragraph 36(h)); and
- reducing air pollution, with particular attention to indoor air pollution from traditional biomass fuels and its health impacts on women and children (paragraph 36(l)).

International Affirmations on Gender, Sustainable Development and Energy

In 1992, the **UN Conference on Environment and Development** produced **Agenda 21**, which recognized the advancement of women as an essential element of sustainable development. Principle 20 of the Rio Declaration states, *“Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development”*. Women were identified as a major stakeholder group to provide input into the work of the Commission on Sustainable Development.

The **Fourth World Conference on Women** in 1995 produced the **Beijing Platform for Action** that called on governments to support equal access for women to sustainable and affordable energy technologies using participatory need assessments in their design of energy plans. Objective K of the Beijing Platform also promoted gender mainstreaming in all sustainable development activities, including an analysis of the differing effects on women and men, before decisions are taken.

At the **2000 Millennium Summit**, 191 governments affirmed their commitment in the Millennium Declaration to promote gender equality and the empowerment of women as effective ways to combat poverty, hunger and disease and to stimulate development that is truly sustainable.

In 2001, the **Ninth Session of the UN Commission on Sustainable Development** (CSD 9) urged governments to address the health and safety concerns of women and children in rural areas, including the impacts of carrying loads of fuel wood over long distances and exposure to the smoke from open fires. CSD-9 also recommended international cooperation to promote equal access and opportunities for women in relation to energy and greater involvement of women in energy policy decision-making processes.

The **World Summit on Sustainable Development** (WSSD) of 2002 adopted the Johannesburg Plan of Implementation, which called for actions to “promote women’s equal access to and full participation in, on the basis of equality with men, decision-making at all levels, mainstreaming gender perspectives in all policies and strategies, eliminating all forms of violence and discrimination and violence against women, and improving the status, health and economic welfare of women and girls” [Section II, Poverty eradication, paragraph 7(d)]. Women’s participation was also emphasized in several of the energy partnerships formed at the WSSD, including the Global Village Energy Partnership. [See <http://www.gvep.org/>]

The UN Millennium Project Task Force on Education and Gender Equality (2005) affirmed that “gender equality and women’s empowerment are central to the achievement of all the Millennium Development Goals. Development policies and actions that fail to take gender inequality into account or that fail to enable women to be actors in those policies and actions will have limited effectiveness and serious costs to societies.”

Annex 4

Readings and Resources on Gender and Energy Issues

From Gender & Energy for Sustainable Development: A Toolkit and Resource Guide, UNDP and ENERGIA, 2004

General Background

ESMAP, 'Mainstreaming Gender into Energy Projects', Waafas Ofosu-Amaah, 2002. <www.worldbank.org/esmap>

International Fund for Agricultural Development (IFAD), 'Gender mainstreaming: IFAD's experience in the Asia and the Pacific region and lessons learned', Asia and the Pacific Division, 1999. <www.ifad.org/gender/progress/pi/>

Sida, 'Analysing Gender', Sida Europe, October 2003, <www.sida.se/content/1/c6/02/16/04/Analysing%20Gender_sida2913.pdf>

Sida 'Energy policy & equality between women and men' Sida Equality Prompt #9 <www.oecd.org/dac/gender/pdf/tipsheets/energy/pdf>

UNDP Gender in Development Programme, 'Learning Manual & Information Pack: Gender Analysis', 2001. <www.undp.org/gender/infopack.htm>

UNDP, Generating Opportunities: Case Studies on Energy and Women, Salome Misana and Gail Karlsson (eds.), 2001. <www.undp.org/energy/publications>

UNDP, World Energy Assessment: Energy and the Challenge of Sustainability, 2000, <www.undp.org/energy/publications>

UNDP, Sustainable Energy Strategies: Materials for Decision-Makers, 2000, Chapter on 'Gender and Energy: How is Gender Relevant to Sustainable Energy Policies?' <www.undp.org/energy/publications>

UNDP and ENERGIA, Gender and Energy for Sustainable Development: A Toolkit and Resource Guide, 2004. <www.energia.org> and <undp.org/energy/publications>

UNIFEM 'Women making a difference in science and technologies: Case studies' <www.unifem.undp.org/wmdst/wmdst2.html>

World Bank, 'Why are gender equality issues important in the energy sector?' Gender and Development Group, <www.worldbank.org/gender/resources/briefing/energy.pdf>

Regional Perspectives

Branco, Adelia de Melo, 'Gender and Energy Issues in Latin America', Regional paper prepared for the World Summit on Sustainable Development, ENERGIA, August 2002, <www.energia.org>.

Makhabane, Tieho., et al 'Gender and Sustainable Energy Issues in Africa: Perspectives for the World Summit on Sustainable Development', Regional paper prepared for the World Summit on Sustainable Development., ENERGIA, August 2002 <www.energia.org>

Parikh, Jyoti., 'Mainstreaming Gender and Energy in South Asia', Regional paper prepared for the World Summit on Sustainable Development., ENERGIA, August 2002 <www.energia.org>

Polestico, Rachel, 'Gender and Energy in Southeast Asia', Regional paper prepared for the World Summit on Sustainable Development, ENERGIA, August 2002 <www.energia.org>

Household Energy

Clancy, Joy S., 'Household Energy Isn't All about Stoves', Boiling Point no. 41, Intermediate Technology Publications, 1998.

Clancy, Joy S., 'Blowing the smoke out of the kitchen: Gender Issues in Household Energy', paper prepared for SPARKNET knowledge network on household energy, 2002. <www.sparknet.info>

Clancy, Joy S., 'Gender and Household Energy - the international context', Briefing paper posted on the SPARKNET website, 2003. <www.sparknet.info>

Dutta, S., 'Role of Women in Rural Energy programmes: Issues, Problems and Opportunities', in ENERGIA News, Vol. 1, Issue 4, October 1997, <www.energia.org>

Klingshirn, A., 'Integrating Household Energy into Rural Development Programmes', 2000. <www.energia.org>

Laxmi, V., Parikh, J., Karmakar, S and Dabrase, P (2003). 'Household energy, women's hardship and health impacts in rural Rajasthan, India: need for sustainable energy solutions', Energy for Sustainable Development, Vol. VII , No. 1, March, 2003. <www.energia.org>

UNDP, Bioenergy Primer: Modernized Biomass Energy for Sustainable Development, <www.undp.org/energy/publications/2000/2000b.htm>

Warwick and Doig, 'Smoke - the Killer in the Kitchen: Indoor Air Pollution in Developing Countries', Report published by ITDG, 2004. <www.energia.org>

Wickramasinghe, A. 'Gender and health issues in the biomass energy cycle: impediments to sustainable development', in Energy for Sustainable Development, Vol. VII, No. 3, pp 51-61, September, 2003. <www.energia.org>

World Bank, Indoor Air Pollution Newsletter, 'Energy and Health for the Poor', Issue No. 3; December, 2000. <<http://lnweb18.worldbank.org/sar/sa.nsf>>

Energy for income generation

Barua, D, 'Energy's Role in Rural Income Generation: The Grameen Strategy,' paper presented at Village Power '98: Scaling Up Electricity Access for Sustainable Rural Development, NREL/World Bank, Washington, DC, October 6-8, 1998. <www.worldbank.org>

Rural electrification

Cecelski, Elizabeth, 'Enabling Equitable Access to Rural Electrification: current thinking and major activities in energy, poverty and gender', Update of a briefing paper prepared for a brainstorming meeting on Asia Alternative Energy Policy and Project Development Support <www.energia.org>

Skutsch, Margaret. M., 'Why Special Attention to Gender in Electrification Programmes?' Background report submitted to Winrock International, Washington, D.C., 2001. <www.energia.org>

Utonih, Selma-Penna and Sibusiso Dlamini, (2001) 'Power sector reforms, rural electrification and gender-related issues', Paper developed for the Southern African Gender and Energy, 2001. <www.energia.org>

Transportation

IFRTD, 'Case studies on the analysis of women's transport needs' for the World Bank Gender and Transport Thematic Group <www.worldbank.org>

Starkey, P, and Fernando, P, 'Women, Transport Energy and Donkeys: Some Implications for Development Workers', in ENERGIA News, Volume 2, Issue 2, 1998. <www.energia.org>

Wonfor, Cheri, 'Women and Urban Transport: Improving Public Taxi Transport and Energy Efficiency in South Africa', in ENERGIA News, Volume 2, Issue 3, August 1998, p. 5-7, <www.energia.org>

World Bank, 'Developing Gender-sensitive Monitoring and Evaluation Systems for Rural Travel and Transport Projects and Programs' <www.worldbank.org/gender>

Gender and energy capacity building

'Transforming the Energy Sector', ENERGIA News Volume 6, Issue 1, pages 14-16 <www.energia.org>

Nixon, S.P. and Tutua, J., 'Village Power in Solomon Islands', ENERGIA News Volume 6, Issue 2, pages 14-16 <www.energia.org>

Financing and credit

Bennet, L. and Goldberg M., 'Providing Enterprise Development and Financial Services to Women: A Decade of Bank Experience in Asia', World Bank Technical Paper no. 236. World Bank, Asia Technical Department Series, Washington, D.C. 1993. <www.worldbank.org>

Ramani, K.V., 'Energy as an Instrument of Women's Economic Empowerment' in ENERGIA News, April 2002 <www.energia.org>

Integrating gender and energy into policy

Cecelski, E., 'From Rio to Beijing: Engendering the energy debate' special issue paper in Energy Policy, Volume 23, Issue 6, June 1995, pages 561-575

Dutta, S., 'Mainstreaming Gender in Energy Planning and Policies', UNESCAP Project on Capacity Building on Integration of Energy and Rural Development Planning" Draft background paper prepared for the Expert Group Meeting hosted by UNESCAP/UNDP 2003. <www.energia.org>

Feenstra, M., 'Engendering Energy Policy: A case study from Uganda and South Africa', Master's thesis study, University of Twente, the Netherlands, December 2002. <www.utwente.nl/tdg>

Karlsson, G., 'Gender and Energy: How is Gender Relevant to Sustainable Energy Policies?' Published in UNDP Sustainable Energy Strategies: Materials for Decision-Makers, 2000 <www.undp.org/energy/publications>

McDade, S. and Clancy J.S., Editorial, Energy for Sustainable Development_ Volume VII No. 3, _September 2003 <www.energia.org>

Parikh, J. K., 'Gender Issues in Energy Policy' in Energy Policy, Volume 23, Number 9, 1995, p. 745-754

Case studies from the regions

Africa

Annecke, Wendy, 'Impact of Women's Energy Group on National Policy' in South Africa, *Generating Opportunities: Case Studies on Energy and Women*, Salome Misana and Gail Karlsson (eds.), UNDP, New York, 2001 <www.energia.org> or <www.undp.org/energy/publications>

Burn, Nalini and Laurent Coche, 'Multifunctional Platform for village power in Mali', in *Generating Opportunities: Case Studies on Energy and Women*, Salome Misana and Gail Karlsson (eds.), UNDP, New York, 2001 <www.energia.org> or <www.undp.org/energy/publications>

Chaieb, Sawsen and Amed Ounalli, 'Rural electrification benefits women's health, income and status in Tunisia', in *ENERGIA News* 4.4, pages 18-20, 2001. <www.energia.org>

Mabona, Malla, 'Ndirande Nkhuni, 'Biomass Briquette Programme - Malawi', *Generating Opportunities: Case Studies on Energy and Women*, Salome Misana and Gail Karlsson (eds.), UNDP, New York, 2001 <www.energia.org> or <www.undp.org/energy/publications>

Mathee, Angela and Thea de Witt, 'Rural electrification in South Africa: implications for the health and quality of life of women' in *ENERGIA News* 4.4 – Pages 20-22, 2001. <www.energia.org>

Mensah, Sabina, 'Energy for Rural Women's Enterprises - Ghana', *Generating Opportunities: Case Studies on Energy and Women*, Salome Misana and Gail Karlsson (eds.), UNDP, New York, 2001 <www.energia.org> or <www.undp.org/energy/publications>

Njenga, Beatrice Khamati, 'Upesi Rural Stoves Project' in Kenya, *Generating Opportunities: Case Studies on Energy and Women*, Salome Misana and Gail Karlsson (eds.), UNDP, New York, 2001. <www.energia.org>

Sengendo, May Christian, 'Photovoltaic Project for Rural Electrification in Uganda', *Generating Opportunities: Case Studies on Energy and Women*, Salome Misana and Gail Karlsson (eds.), UNDP, New York, 2001 <www.energia.org> or <www.undp.org/energy/publications>

Wamukonya, Njeri, 'A critical look at gender and energy mainstreaming in Africa', 2002. <www.un.org/womenwatch/daw/forum-sustdev/Njeri-paper.pdf>

World Bank/ESMAP project 'Women's Energy Enterprise: Developing a Model for Mainstreaming Gender into Modern Energy Service Delivery - Ghana' <www.worldbank.org/esmap>

[See also *ENERGIA* Annotated Bibliography of documentation on gender and energy in Africa, <www.energia.org/resources>]

Asia

Bhogle, S., 'Rural women as agents of improved woodstove dissemination: a case-study in Huluvangala village, Karnataka, India', in *Energy for Sustainable Development*, Vol. VII, No. 3, pp70-75 September, 2003

Everts, Saskia, and Bob Schulte, 'Vietnam Women's Union Promotes Solar Energy' in *ENERGIA News*, Volume 1 Issue 3, July 1997, p.12-13 <www.energia.org>

Khan, Hasna, 'Battery-Operated Lamps Produced by Rural Women - Bangladesh', in *Generating Opportunities: Case Studies on Energy and Women*, Salome Misana and Gail Karlsson (eds.), UNDP, New York, 2001 <www.energia.org> or <www.undp.org/energy/publications>

Khuller, Anita, 'Making a world of difference in the homes of a few', in *ENERGIA News* 5.2 pages 19-20, 2002. <www.energia.org>

Rana-Deuba, Arzu, 'Rural Micro-Hydro Development Programme – Nepal', in *Generating Opportunities: Case Studies on Energy and Women*, Salome Misana and Gail Karlsson (eds.), UNDP, New York, 2001 <www.energia.org> or <www.undp.org/energy/publications>

Sinha Shirish, 'Tare Tare Kiss: the story of a tribal women's self-help group's struggle to get electricity in their village' in *Energy for Sustainable Development*, Vol. VII, No. 3, pp30-32, September, 2003 <www.energia.org>

Latin America

Ana Choque Salas and Xiomara del Rosario Torres, 'Solar disinfection of water in Latin America benefits women and their families' in *ENERGIA News* 4.4, pages 16-17, 2001. <www.energia.org>

Yturregui, Lourdes Palao, 'Coping with a Lack of Electricity in Marginal Urban Areas', in *ENERGIA News*, Vol 2 no 1., 1998 <www.energia.org>

Pacific

Bryce, Donella and Ching, Chin Soo, 'Bulelevata Women Speak', in *ENERGIA News* 6.2 pages 19-20, 2004. <www.energia.org>

Nixon, Silas Pio and Tutua Joini, 'Village Power in Solomon Islands', in *ENERGIA News* 6.2 pages 14-16, 2004. <www.energia.org>