

Gender and Rural
Electrification
Viewing Electrification
through a Gendered
Lens
Editorial 1

News from the
Secretariat 4

International Programmes
ESMAP 8

Internet Resources 9

Networking around the
world 10

Meeting ENERGIA Members
Loyda Alonso 12

The Impact of Electrification
on Women's Lives in Rural
India 13
Mitali Sen and Douglas Barnes

Electrification through Micro-
hydro Plants in Rural Nepal
Ishara Mahat 15

Ensuring Women's Role in
Rural Electrification
Programmes in Bangladesh
Sadeka Halim 17

Gender Mainstreaming in
the Bangladesh Rural
Electrification Board 18
*Joy Clancy, Lailun Nahar
Ekram, Sadeka Halim,
Nasmunnessa Mahtab*

Monitoring Tools for Rural
Electrification 21
May Sengendo

Bulletin Board 23

Next issue 24



Household electricity gives more opportunity for women to be involved in evening activities (Photo: ESMAP archive)

Gender and Rural Electrification

Viewing Electrification through a Gendered Lens

Mitali Sen and Douglas Barnes

In most of the developing world, electricity constitutes a small fraction of the total energy consumed. However, when available, electricity has the potential to improve people's lives dramatically. At a very minimum, it provides good quality lighting that enables people to take care of chores or reading and studying in the evening. When exploited to its full potential, it can increase agricultural and industrial productivity, improve the delivery of health care to millions, relieve many drudge-laden chores such as processing food grains, washing and cleaning, widen horizons through access to the radio and television, provide lighting for

adult education and literacy classes as well as assist in income-generating activities. Electrification is thus welcomed by almost everybody as a harbinger of a better life, and access to it has long been used as an indicator of development. However, this gender-neutral perspective on the dynamics of electrification as a good indicator of development is increasingly difficult to sustain. This issue of ENERGIA News presents articles that explore how gender and electrification are inextricably linked, and why the debate on gender mainstreaming urgently needs to be sharpened and strengthened, and interact with programmes not closely linked to gender issues.

So how does an infrastructure such as 'Electrification' look when viewed through a gendered lens?

In some countries, the predominant focus of policy on rural electrification has been on economic growth - mainly to increase agricultural and industrial productivity. Men are the main actors involved in these types of activities and, thus, such a concentration on policy prescriptions for development results in a masculine agenda. In such cases, the importance of providing electricity to households remains a secondary goal. The benefits of electricity for households has been viewed in some cases as domestic, or part of the feminine domain, and consequently remains neglected or undervalued. It is not uncommon to find that electricity lines are brought all the way into a village, but then that policies, such as high initial connection charges and lack of payment-by-installment options for house wiring, limit the number of families that can gain access to the electricity. Poor homes remain lit with a flickering light of a lantern, water is drawn from distant sources by women and food is processed and cooked without the aid of small appliances. Thus, at the policy level, household electrification is sometimes neglected. Our article on India concludes on this note while highlighting the beneficial effects of electrification when women in households have access.

Further, the decision-making structures for the distribution and supply of electricity to households are typically dominated by men. The absence of women implies that their interests may not be represented on issues such as pricing, marketing, technology development and access. Even in relatively developed countries, where the genders tend to be more equal, women are rarely seen as decision-makers, engineers, technicians or operators of electricity systems. Decentralised technologies have a higher potential to involve

women at the grass-roots level. Soluz Inc., manufacturers and distributors of solar energy systems, is a case in point. Their operations in Dominican Republic and Honduras have so successfully encouraged the involvement of local women that 60% of the Microcenters are owned and operated by women. This issue includes an interview with Loyda Alonso, the President and General Manager of Soluz Honduras, who shares her perspective on the advantages of Solar Energy Systems and her experiences as a woman in a male-dominated sector. The issue of women's negligible participation in the electrification sector is also raised in the article by Mahat on the operation of micro-hydro systems in Nepal.

A gendered perspective helps us see how the impact of electrification is different for women and for men. The end-uses of electricity are many and varied but, if we carefully focus our lens, we see that electrification is being used for some activities far more than it is being used for others. Readers of Energia News are well aware of the overwhelming use of biomass fuels in poor countries, and the negative impact this has on women's lives because of the way they are obtained and burned. The complex relationship of poverty and patriarchy leads to a world where most of the used domestic sources of energy are collected by women from local environments. It is against this background that electricity holds much of its promise. However, as the articles on Nepal, Bangladesh and India in this issue highlight, electricity has yet to be fully exploited for relieving women's hardships. Many still pound grain, walk long distances carrying heavy pots or head-loading water or biomass. Entire days are spent doing tiring and heavy subsistence work. While household electrification brings a welcome relief on many fronts, such as access to good quality lighting and increased leisure and reading time for all, the promise of electricity remains far from being fulfilled for women who work in the subsistence economy.



Rural electrification brings more job opportunities for women (Photo: ESMAP archive)

Finally, the markets (especially rural ones) for electrical goods and appliances in developing countries are relatively weak when it comes to technologies that could help women's work. Since men are generally the decision-makers, markets are biased towards leisure items for the home such as televisions, VCRs and tape recorders. Certainly, women benefit from these appliances along with men, but many of the labour-saving devices that would be of great benefit for women are way down the shopping list.

Mainstreaming Gender

Recently, organisations such as the UN and the World Bank have called the attention of the development community to the need to "mainstream" gender. Rather than gender equity and empowerment being just one of the eight Millennium Development Goals, there is an urgent need to look at every development goal through a gendered lens. Goals like eradicating poverty, improving education and health, or sustaining the environment, can all benefit from a gendered perspective. Infrastructure projects, such as the provision of clean water, sanitation or electrification are doomed to fail if gender is left out of the equation. One of the first requirements in mainstreaming gender is to involve women at all levels of a project. The articles on Bangladesh and Nepal make a strong case and show that although the development community has set up boards and committees where women are compulsorily represented, their voices are rarely heard. Also in this issue, May Sengendo highlights some of the ways in which the Energy for Rural Transformation programme in Uganda could measure the energy-gender-poverty linkages. Stressing the importance of monitoring the progress of such programmes, she suggests that when studying factors such as participation, decision-making structures, access to resources and financing that the data is collected and evaluated on a gender-disaggregated basis.

The problems with mainstreaming gender stem from two main factors - the cultural matrix of gender systems in a community, which tends to be patriarchal, and the lack of conviction in the development community that gender is an important factor in infrastructural

projects and planning. While the first calls for integrated development programmes that help to improve the status of women, the second requires a commitment on the part of academia, policymakers and practitioners to conduct further studies that reveal the gendered nature of development projects. Lallement's article addresses these issues, and the efforts that are being made by ESMAP to engender the energy sector.

Need for Gender Research

The articles in this issue reflect the lack of research into identifying gender as an important component of development. Most of the articles focus on the impact of electrification, and point to the lack of women's involvement in the electricity sector. Much work remains to be done if a convincing case is to be made for how mainstreaming gender in infrastructure projects will alter developmental outcomes.

The case for the significance of a gendered perspective cannot be made solely on the basis of studies that focus on differential impacts. A concerted effort needs to be made, both by the development community and by gender academics, to examine and articulate more clearly the complex relationship between the provision of infrastructure and gender systems. At present, most of the work done is drawn from the development community. Few gender and women studies researchers are involved in studies on infrastructural development. ■



◆ Mitali Sen, a Research Associate in the Department of Sociology, University of Maryland, College Park, is presently engaged as a programme manager of a large national multi-topic household survey on Social Structure, Environment and Health in India, sponsored by the National Institutes of Health. A development sociologist, she has worked on issues related to gender and energy since 1997. Before her present position,

she combined her passion for policy-oriented research with her enthusiasm for teaching by simultaneously working as a Consultant with the World Bank and teaching at Santa Clara University in California. Mitali received her MA in Sociology from the Delhi School of Economics in India, and a PhD in the same, from the University of Maryland in the USA. Her dissertation, entitled *Women, Power and Comfort: The Case of Rural India*, examines the impact of access to household electrification and water on women in India by analysing time allocation data of 5000 rural women.

◆ Department of Sociology, University of Maryland, College Park MD 20742, USA; Tel: +1.(0)301.4056413; Fax: +1.(0)301.3146892, E-mail: msen@socy.umd.edu



◆ During the last 20 years Douglas Barnes has worked at the World Bank, and presently is a senior energy specialist in the ESMAP programme within the Energy and Water Department of the World Bank in Washington, DC. Prior to joining the Bank, he worked at the Center for Energy Policy Research at Resources for the Future in Washington, DC. As part of his work, he was actively involved in examining energy, environment and

equity issues in developing countries, and has published extensively on rural electrification and other related subjects. Douglas Barnes is a sociologist with an AB from Ohio University, Athens, Ohio, an MA from St. John's University, New York City, and a PhD from University of Illinois at Champaign-Urbana.

◆ ESMAP, Energy and Water Department, The World Bank Group, 1818 H Street, NW, MSN F4K-410, Washington, DC 20433, USA; Tel: +1.(0)202.4731412; Fax: +1.(0)202.5223018, E-mail: dbarnes@worldbank.org



News from the Secretariat

Institutional Development

Regional Network Coordinator (RNC) for Africa

ENERGIA is pleased to announce that Ms Fatma Denton of ENDA Tiers Monde in Senegal has been appointed as Africa Regional Network Coordinator. A three-member review committee comprising of regional representatives went through a comprehensive review process before making the selection. Well-known for her expertise in gender, energy, environment and climate change issues, Fatma will play a key role in strengthening the Africa Gender and Energy Network.

Network building

Gender and Energy Consultation Workshops

Uganda

On 30 January 2004, the East African Energy Technology Development Network - Uganda (EAETDN-U) hosted a workshop on gender and energy. Thirty-six participants, representing NGOs, government agencies, research institutions, community-based organisations and the University of Makerere attended the workshop. Networking in gender and energy was discussed using case studies on projects that had been implemented in Uganda. The workshop decided that the Uganda Gender and Energy Network (GEN) was best placed to form a thematic group, under EAETDN-U, to bring together all the stakeholders from fields such as energy, agriculture, environment and gender. A GEN executive committee was elected for the period 2004-2006, with the task of preparing a plan based on the needs raised by the various stakeholders. More information can be obtained from May Sengendo at sengendo@infocom.co.ug. The detailed report can be read at: http://www.energia.org/resources/reports/uganda_natcons.pdf

Botswana

A consultation workshop to establish a National Gender and Energy Network in Botswana was hosted by BOTEC (Botswana Technology Centre) on 30-31 March 2004. The workshop brought together organisations with a stake in gender and energy issues in the country who brainstormed over an action plan to mainstream gender in the national energy policy. The Gender and Energy Network of

Botswana was established, and BOTEC was selected to host and coordinate the network and be ENERGIA's Focal Point in the country. Nozipho Dithale is the contact person and can be contacted at noziphom@botec.bw. More details on this workshop are available in a report at: http://www.energia.org/resources/reports/botswana_natcons.pdf

Bangladesh

A one-day consultation workshop about setting up a National Gender and Energy Network in Bangladesh was hosted by Prokaushali Sangsad Ltd. on 6 May 2004 in Dhaka. The 35 participants at the meeting represented educational and research organisations, government agencies, NGOs, donor organisations, the private sector and the media. The meeting took stock of the energy policies, programmes and activities related to gender and energy in Bangladesh, and identified the scope for intervention by the proposed gender and energy network. After a short introduction to the ENERGIA International Network, the group went on to discuss organisational issues. The name "Gender and Energy Network – Bangladesh" was agreed upon. Based on its track record of working in gender and energy issues, Prokaushali Sangsad Ltd. was selected as the National Focal Point, and to host the network's secretariat. Ms Asma Huque was selected to be the first coordinator of the network and was mandated to manage operations until the full organisational structure, including a Chairperson, Steering/Executive Committee and Technical Advisory Groups, was established. Mainstreaming gender issues in planning, fact-finding and research on gender and energy, capacity building, information dissemination and awareness raising campaigns are some of the areas of involvement identified for the network. These will be worked into an action plan at a future meeting of the network. For more information please contact Ms Asma Huque at psl@bd.drik.net. The detailed report can be found at: http://www.energia.org/resources/reports/bangladesh_natcons.pdf

Pakistan

A consultation workshop to establish a National Gender and Energy Network in Pakistan was held on the 21 July 2004 in Islamabad, hosted by the Aga Khan Rural Support Programme (AKRSP). Forty-one participants from the private and public

sectors, NGOs, donor agencies and the media attended. After a general introduction, the workshop identified the main gender and energy issues in the country, and the ongoing programmes that are tackling some of these issues. A national network to address these issues was established, with AKRSP as the National Focal Point and secretariat, and with the responsibility to liaise between the national network and ENERGIA. Seventeen organisations signed up as founder members of the Network, and an Interim Steering Committee was set up to work on procedures and structures. More details can be obtained from Ms Fareeha Ummar at fareeha.ummar@akrsp.org.pk. Read the detailed report at: http://www.energia.org/resources/reports/pakistan_natcons.pdf

Mali

Also in July 2004, a similar consultation exercise to set up a Gender and Energy Network in Mali was organised by the NGO Mali-Folkecenter. Among the 24 participants were representatives from government ministries, international and national NGOs, universities and civil society organisations. The gender and energy scenario in Mali was mapped out through several presentations. The ENERGIA Focal Point in Nigeria, Friends of the Environment, presented the objectives and aims of ENERGIA. Ms Dembele Aida of Mali-Folkecenter shared her experiences of the Gender and Energy Training Workshop organised by ENERGIA in South Africa. Having reached a consensus on the need to establish a gender and energy network in Mali, the participants selected Mali-Folkecenter as the ENERGIA Focal Point in Mali, with Ms Dembele Aida as President of the network. A Steering Committee consisting of several participating organisations will be involved in developing a set of internal rules for the network. For more information, please contact Ms Dembele Aida of the Mali-Folkecenter at aida.dembele@undp.org. The detailed report is available at: http://www.energia.org/resources/reports/mali_natcons.pdf

Laos

On 6 October 2004, the Gender Resource Information Center (GRID) in cooperation with the Lao Women's Union (LWU) hosted a national gender and energy consultation workshop in Vientiane. Twenty-nine participants attended the workshop, mainly from the government sector. Nearly all of the

major government departments were represented, including electricity, education and non-formal education, culture and media, commerce, industry, and planning. The workshop had three major sessions: presentations by each participating organisation on its gender and energy activities; a presentation on ENERGIA by Soma Dutta, Asia RNC; and one focussed on identifying gender and energy priorities for the network. GRID was elected as the National Focal Point with a steering committee consisting of some of the organisations present. GRID was mandated to prepare the necessary documentation and to submit it to the President of LWU for approval, after which the members of the steering committee would be formally accepted. Please contact Ms Bundith Prathoumvanh at gridvte@etllao.com for more information. The detailed report can be found at:

http://www.energia.org/resources/reports/lao_pdr_natcons.pdf

GEWNet Nepal – Fifth Steering Committee Meeting

CRT/Nepal, the ENERGIA Focal Point in Nepal, hosted the fifth steering meeting of the Gender, Energy and Water Network in March 2004. The progress of the network during the previous six-month period was discussed. This included the gender-sensitisation programmes for the staff of the improved water mills, and the gender baseline for the water mills programme of CRT.

ARECOP (Asia Regional Cookstove Programme) Planning Technical Advisory Meeting, Hanoi, Vietnam, August 2004

Several ENERGIA members, and also members of ARECOP, were present at this meeting. Soma Dutta, Asia RNC, made a presentation on ENERGIA and its activities in Asia, identifying common areas that ENERGIA and ARECOP could collaborate on such as capacity building, information sharing and advocacy events, and the development of resource material. The meeting has enhanced the synergy between ARECOP and ENERGIA

Capability Building

Workshop to Test Gender and Energy Training Materials in South Africa

Two upgraded modules of the Gender and Energy Training Pack, namely Gender and Energy Concepts and Tools to Plan a Gender Sensitive Energy Project, were tested at a six-day workshop in South Africa in July 2004. The training was organised by ENERGIA in collaboration with the Mineral and Energy Education and Training Institute (MEETI), South Africa. May Sengendo, ENERGIA member from EAETDN in Uganda, and Banda Dazydelian from ESAMI were the



Participants of the National Gender and Energy Consultation in Botswana (Photo: Nozipho Dithale)

trainers. Joy Clancy, ENERGIA's technical advisor for capacity building, provided backstopping. Representatives from both the energy and development sectors were among the 21 trainees, who included several ENERGIA Focal Point representatives. Trainees will develop follow-up action plans to apply their newly-gained skills in their own work by November 2004. ENERGIA will provide backstopping to the trainees in implementing these action plans. A full report on the training workshop can be obtained from the ENERGIA secretariat on energia@etcnl.nl

Revision of Training Modules

Based on the comments of the trainees at the above-mentioned workshop, observations by the ENERGIA technical advisor Joy Clancy, and the comprehensive report written by the lead trainer May Sengendo, the Technology and Development Group has revised the two modules for dissemination within the ENERGIA Network.

National Training Workshop on the Integration of Energy and Rural Development Policies and Programmes in Sri Lanka

This workshop was organised, from 15-17 October 2004, by the University of Peradeniya and the Energy Conservation Fund of the Ministry of Power and Energy with sponsorship from UNESCAP. ENERGIA's National Focal Point in Sri Lanka, NANEGE, coordinated the workshop, with Anoja Wickramasinghe taking the lead. Thirty-seven participants from government ministries and departments, NGOs, the private sector and academia attended the workshop. Mainstreaming gender issues in energy policies and programmes was the focus of one of the seven technical sessions. In this session, Anoja Wickramasinghe examined the concepts of gender analysis

and gender mainstreaming, and presented a stepwise procedure for promoting gender-responsive projects, policies and programmes that cut across local, provincial and national levels. The participants found the workshop a stimulating first step in working towards a national strategy for energy integration in rural development policies and programmes. They suggested having similar training workshops at various levels to increase awareness on the subject.

Knowledge Resources

Gender and Energy Toolkit and Resource Guide

UNDP and ENERGIA have collaborated in developing this gender and energy toolkit and resource guide. It will be an asset to all practitioners and planners faced with the challenge of engendering energy projects and incorporating gender and energy aspects in overall development planning. The guide will be soon available in electronic and printed forms. The publication, *Gender and Energy in Sustainable Development: A Toolkit and Resource Guide*, will be launched at a special ENERGIA/UNDP side-event at the International Conference on Energy for Development in December 2004 in Noordwijk, the Netherlands.

Regional and International Advocacy

World Bank Energy Week, 8-12 March, 2004

Sheila Oparaocha, ENERGIA Coordinator, was invited to participate at the World Bank Energy Week in Washington D.C. It was an opportunity to meet many of the regional WB staff and representatives from private energy utilities, national energy ministries etc. Gender in the mining industry was a highlight of the session on gender and

energy. ENERGIA considers this invitation significant in gaining future support for the network's activities.

Partnership for Clean Indoor Air, HHEAP Workshop,

8-10 March 2004, Rome, Italy

Elizabeth Cecelski participated on behalf of ENERGIA at the Harmonised Health and Exposure Assessments Protocol Workshop in order to learn more about the Partnership for Clean Indoor Air and to make gender inputs. The meeting had a strong technical bias and did not provide the room for social aspects to be brought in. The Southern representation at the meeting was also minimal. ENERGIA does not feel it should join the partnership, but will follow its developments in gender-related issues.

RENEWABLES 2004,

1-4 June 2004, Bonn, Germany

Having substantially contributed to the preparatory phase of Renewables 2004, ENERGIA actively participated at the conference itself. ENERGIA and Life e.V. (Germany) organised a side-event "Renewable Energy – Gender Perspectives from North and South". The event was attended by more than 50 conference participants including the Ugandan Minister of Energy and Mineral Development, donor representatives from Sida, BMZ and DGIS, and members from AFREPREN and ENDA. ENERGIA members from Asia (Indira Shakya - GEWNet, Nepal), Africa (Lydia Muchiri - ITDG, Kenya), and the Pacific (Yogita Chandra - PEG, SOPAC Fiji) were panellists at this event. As part of the stakeholder group representing Women, ENERGIA, in collaboration with Climate Alliance of European Cities with Indigenous Rainforest Peoples, ITDG Kenya, Novafrica Centre for Innovation and Development, GEWNet - Centre for Rural Technology Nepal, Pacific Gender and Energy Network, Gratis-Ghana, Windfang and Life e.V - Germany, also contributed to the main conference sessions and worked hard to get gender incorporated into the Political Declaration – a key outcome of the conference. The Political Declaration clearly states the importance of gender mainstreaming and recognising the roles of women in strengthening human and institutional capacities for renewable energies. This group of organisations came up with actions and commitments to mainstream energy in energy policy, planning and programmes at the international, national, regional and local levels. They also stressed the importance of assessing the gender impacts of the International Action Programme. The group also contributed to gender considerations within the policy recommendations for renewable energies. The conference report can be read at: http://www.renewables2004.de/pdf/conference_report.pdf



Trainers and trainees of the Gender and Energy test training workshop in South Africa (Photo: MEETI)

An evaluation of the event by one of the participants is found on page 10.

World Renewable Energy Congress VIII, 29 August - 3 September 2004, Denver, Colorado, USA

With poverty alleviation and the environment having a high priority on the agenda, the WREC, for the first time in its history, identified gender and energy as a track in its own right. ENERGIA Network members provided significant support in organising events, presenting papers, co-chairing sessions, and leading discussions. On 29 August, a whole day workshop was organised on the theme, "Gender and Poverty Reduction: Issues and Roles of the North and the South". Dominique Lallement of ESMAP, World Bank, made the keynote address, whilst Elizabeth Cecelski, Anoja Wickramasinghe, Govind Kelkar, Wendy Annecke and Joanna Maduka were among the invited speakers. Presentations on the human face of energy and poverty were made at the plenary sessions on two days of the conference. During the week, 22 speakers reported on gender and energy research and policy issues from around the world, including Afghanistan, Bangladesh, Canada, India, Morocco, Nepal, New Zealand, Sri Lanka and the United States. The WREC VIII participants recommended a number of actions regarding gender, energy, water, health and poverty reduction to be taken to the 14th and 15th sessions of the Commission on Sustainable Development.

Regional Seminar on Renewable Energy, 6 September 2004, New Delhi, India

ENERGIA was invited to this seminar organised by INFORSE. Soma Dutta, Asia RNC, made two presentations at the event entitled, "Networking in Gender and Energy: ENERGIA International Network on Gender

and Energy" and "Mainstreaming Gender in Renewable Energy".

UNESCAP Meeting on Energy for Sustainable Development, 26-29 September 2004

UNESCAP organised this Ad-Hoc Expert Meeting to which gender inputs were provided by Soma Dutta and Anoja Wickramasinghe. They are pleased to report that the final recommendations of this meeting have incorporated gender aspects.

Research and Analysis

Research Project "Gender as a key variable in energy interventions in developing countries: are we asking the right questions"

This research project, funded by Dfid-KaR, is being carried out by ENERGIA with Elizabeth Cecelski as principal researcher. The project aims at developing an analytical framework for understanding and measuring linkages among gender, poverty and energy that will be credible in both gender/poverty and energy terms, with a view to improving project design. Six case studies will be carried out in developing countries during the project that will address two major research questions: a) Do gender relations constitute a key variable in determining the impact of energy policies, programmes and projects? and b) How can energy (service and policy) interventions most effectively contribute to the process of empowering women? Elizabeth Cecelski has written a concept paper (available at www.energia.org) on "Re-thinking gender and energy: old and new directions" as an input to the project. The participating researchers in the project make up the Collaborative Research Group on Gender and Energy (CRGGE) and interact through a listserver run by ENERGIA. The CRGGE is made up of ENERGIA network

members and partners from South Africa, Uganda, India, Senegal, France and the UK. The CRGGE members will comment on each other's research outputs, and will play a key role in disseminating results through their own networks.

The inception meeting for the project was held in Cape Town, South Africa, from 19-22 April 2004 to prepare the analytical framework and to discuss and revise the case study proposals. Joy Clancy, coordinator of the Dfid-KaR project "Enabling urban poor livelihoods policy making: understanding the role of energy services" has also become a member of the CRGGE and participated in the meeting. A review meeting is planned for early 2005, and the project will be completed by August 2005. For more information, contact Sheila Oparaocha at energia@etcnl.nl or Elizabeth Cecelski at ecceleski@yahoo.com

NEW WORLD BANK/ ESMAP PUBLICATION

Clean Household Energy for India: Reducing the Risks to Health

This booklet is based on two studies of the World Bank, namely, India – *Household Energy, Indoor Air Pollution and Health* (2002) and *India - Access of the Poor to Clean Household Fuels* (2003). The studies were undertaken by the Environment and Social Development Department of the South Asia Region of the World Bank, with support from the joint World Bank/UNDP Energy Sector Management Assistance Programme (ESMAP) and the Trust Fund for Environmentally and Socially Sustainable Development of the Government of Norway.

The booklet starts with a discussion of the dangers of biomass fuel smoke and continues with an analysis of exposure to biomass fuel smoke in rural India. This analysis is done by fuel type, by type of household members, and by kitchen type in solid-fuel households. Changing household energy patterns are discussed thereafter with options such as behavioural change (keeping children away from smoke), better kitchen ventilation and location, more efficient stoves and the use of cleaner fuels. Issues such as subsidies as a means of stimulating change to cleaner fuels and options for cleaner burning of biomass are discussed extensively. Recommendations for tackling the problem of indoor air pollution through multi-stakeholder interventions are offered.

To obtain a copy of the booklet, please contact: The World Bank, Lodi Estate, New Delhi – 100003, India.

WREN 2004 Pioneer Awards for ENERGIA Members

ENERGIA is proud to announce that Elizabeth Cecelski, founder member of the ENERGIA Network and presently Technical Advisor for Research and Advocacy, and Dr. Aparna Basu, President of the All-India Women's Congress, ENERGIA National Focal Point in North India, have received WREN 2004 Pioneer Awards for their lifelong contributions to the advancement of renewable energy. Congratulations Liz and Dr. Basu on behalf of the ENERGIA Network.

In accepting her award, Elizabeth acknowledged ENERGIA and the role it has played in her work on gender and energy, and recognised that gender and energy was now an important part of the WREN. Elizabeth added, "In the next WREC, we hope to see not only gender and energy, but the whole range of demand analysis, socioeconomic, poverty, and institutional issues included in the conference". Elizabeth also recognised and thanked ENERGIA Coordinator Sheila Oparaocha and ENERGIA member Barbara Farhar for their critical efforts in launching gender and energy in the WREN.



Dr. Aparna Basu and Elizabeth Cecelski (standing 1st and 2nd from left) among the group of WREC award winners at the gala evening in Denver (Photo: WREC participant)

Updating Contact Details

If your contact address has changed, please inform the Secretariat at energia@etcnl.nl so that we can update the database. This way you'll continue to receive the newsletter at your new location.



International Programmes

ESMAP – Rural Electrification and Gender

Dominique Lallement

The Energy Sector Management Assistance Program (ESMAP) is a UNDP/World Bank global technical assistance programme that was established in 1983 in response to global energy crises. ESMAP's mandate has evolved over time to meet the changing needs of its clients. The Program suggests innovative and strategic "cutting edge" solutions to governments, in the areas of both traditional and non-traditional energy use, complementing and facilitating the work of other development institutions and the private sector. ESMAP is focused on upstream, that is pre-investment, issues that have a clear potential for key policy formulation and energy investment.

Since its creation, ESMAP has operated in over 100 countries with activities covering a broad range of energy issues. Early on, these activities were almost exclusively Country Energy Assessments - tools which served to fill the knowledge gap on the energy situation in a specific country, and provide options to address priority energy issues in an environment of rapidly rising energy prices.

ESMAP promotes the role of energy in poverty reduction and economic growth in an environmentally responsible manner. Its stated objectives are to:

a) help build consensus and provide policy advice on sustainable energy development to governments of developing countries and economies in transition. ESMAP seeks direction from baseline/data methodologies that determine who are the energy poor, what are their needs, their coping mechanisms, the benefits from energy services, etc.

b) contribute to the transfer of technology and knowledge in energy sector management. The vehicles for knowledge dissemination include: workshops, conferences, publications and our website – www.esmap.org

c) the delivery of modern energy services to the poor.

ESMAP recognises the urgent need to address energy access through a gender lens. Energy poverty is a gender-biased poverty. Women, who constitute 70% of all poor people, bear much of the burden of limited access to electricity and other forms of modern energy. In most developing countries, women provide most of the human energy for expanded food production, for crop, water and energy transport, and for cooking. They are the more intimately involved, not only with access and affordability, but also with health and safety issues. Historically, women have been invisible/absent from the energy sector, partly due to the lack of recognition of their contribution to society, to their lack of access to education and to their limited engagement in technological progress. However, if priorities were changed to take into account some of the specific needs of women, improved energy services including rural electrification could contribute in an even greater way to improving women's lives. To tackle the gender policy inequity issue in the electricity sector, two main points need to be addressed. The first is to make women as energy consumers visible and alleviate the burden of their tasks by improving their access to modern energy services, including electricity. The second is to challenge the hierarchical relationships which maintain and perpetuate women's subordinate position in the energy sector and in society.

Access, availability, security and sustainability of electricity and other modern energy

services are essential for the poor to achieve an adequate quality of life that empowers them to decide their future for themselves. Women especially benefit from improved energy services: in health, education and productive activities. More importantly, they acquire an increased capability to command their own lives.

These facts make it clear that women are the backbones of their economies and deserve full attention. As a consequence, since 1998, ESMAP has developed a work programme on gender in energy aimed at mainstreaming gender in energy activities of Governments, donors, and other stakeholders. This programme has included workshops, studies and pilot projects in rural electrification and other energy services. A recent report published by ESMAP, **The Impact of Energy on Women's Lives in Rural India**, indicates that electricity can affect the time and energy spent collecting traditional energy. Having electricity, and using other modern fuels, may free women and girls for education, income-generating work and social activities. In addition, if electricity along with other forms of modern energy access is increased in rural areas, the local economy will become more robust with increased employment opportunities. Developing income-generation opportunities for women in modern energy delivery can be an effective approach to empower women. An ESMAP project, **Opportunity for Women in Renewable Energy Technology Utilization (Phase I and II)**, resulted from a successfully piloted project in Bangladesh, which involved capacity building among rural women and micro-enterprise development for modern energy service delivery to their community. This pilot project has demonstrated that the transfer of skills for manufacturing and production of energy service appliances can be accomplished without high levels of education among rural women, and that such skills can initiate social transformation, boost women's self-confidence and generate income for both women and men in the community. Two other ESMAP projects, **Household Energy & Women's Lives: The Case of India and Rural Electrification Policy Development and Conceptual Design of Energy Services Delivery Projects to Improve Rural Health and Education Service Delivery – Papua New Guinea**, have focused on the consequences of a lack of efficient and clean access to energy, namely serious health outcomes for the exposed population. In India, the project found that cooking with biomass fuels exposes household members, particularly women cooks and young children spending time around their mothers, to concentrations of harmful pollutants that are much higher than ambient air concentrations in even the most polluted



cities. The goal of another ESMAP project, **Designing a Poverty-focused, Gender-sensitive Monitoring and Evaluation Plan for a World Bank Renewable Rural Electrification Project**, is to develop a demand-oriented approach or methodology to monitor and evaluate rural electrification projects. The methodology is intended to assist rural electrification programmes in measuring the socioeconomic impacts of their projects, with a focus on the poverty and gender implications. The result of the project is a research strategy and two different, but complimentary, methodologies that can be useful in project design and implementation, and in post-project assessment. The ultimate goal of this initiative is to develop a sound methodological approach for improving the design, implementation effectiveness and monitoring of rural electrification projects. **The Mesoamerican Gender in Sustainable Energy (GENES) Network** has reported on a programme which included gender-sensitivity training for energy practitioners, as well as pilot projects in rural and peri-urban areas. Up to 35% of Central America's population live without electricity. The costs of conventional rural electrification are often prohibitively high, and rural electrification programmes additionally tend to disregard the needs of the population for a combination of energy

sources. During workshops, participants learned about the relevant gender issues in the energy sector and were introduced to tools with which they can integrate gender into the design and implementation of energy projects. Pilot projects demonstrated how broadening the technology options for power, heat and lighting can help improve health, education and security. Reading, for school or pleasure, is also dependent on daylight and thus the opportunity costs of poor access to domestic energy have profound effects on all members of the family, but especially for women who are direct contributors to economic development.

While proud of its achievements, ESMAP believes that more needs to be done to achieve results that ensure that electrification and energy services programmes more generally meet the needs of women and men. Through its active participation in the Global Village Energy Partnership, which it helped launch, ESMAP sees an opportunity to continue its mainstreaming efforts. ESMAP also plans to engage more actively in capacity building efforts. It believes that only when more women are engaged as energy decision-makers in governments, parliaments, communities and as programme designers and managers will greater gender equity be achieved. ■

The contributions made by Douglas Barnes and Muthoni Gukoni of ESMAP to this article are kindly acknowledged.



◆ Dominique Lallement has worked for the World Bank for over 25 years. Currently, she is the Energy Adviser in the Energy and Water Department and Manager of the Energy Sector Management Assistance Program (ESMAP), which

advises on Bank energy strategy, in particular on the energy-poverty nexus, institutional and capacity building, and multi-sectorial policy and implementation issues. She is also the coordinator of the Technical Secretariat of the Global Village Energy Partnership (GVEP).

◆ ESMAP, c/o The World Bank Group, 1818 H Street, N.W., MSN # 403, Washington, D.C. 20433, USA.
Tel: +1.(0)202.473 1412;
Fax: +1.(0)202.522 3018;
E-mail: dlallement@worldbank.org

Internet Resources



Breathe Easy Network - India

This knowledge-based network is open to all interested organisations and individuals, and aims to raise awareness of the health impacts of household energy in the context of acute poverty and to build capacity for the identification and implementation of potential solutions. The network provides resources such as relevant news, details of events, access to publications, details of courses, useful contacts in India and worldwide, and the availability of resources for project development and implementation. Join the network at: <http://india.shellfoundation.net/goto.php/index.htm>

WHO website on indoor air pollution

WHO has recently launched a website on indoor air pollution. It contains a brief overview of the health and broader impacts of cooking and heating with solid fuels, a description of interventions to reduce indoor air pollution, links between household energy and the Millennium Development Goals and, lastly, WHO's activities towards reducing indoor air pollution. The website also provides easy access to other related resources, including databases on indoor air pollution, publications and information on useful web links. The website is accessible in three languages: English, French, and Spanish. Visit the site at: <http://www.who.int/indoorair/>

United Nations Non-Governmental Liaison Service

This new website seeks to provide civil society organisations with the latest information on the work of the UN System, its agencies, and relevant intergovernmental

processes. In addition to accessing NGLS publications, you can also now obtain a number of featured UN publications and civil society reports, including official reports on the implementation status of major commitments made at UN conferences over the last decade. Visit the site at: <http://www.un-ngls.org/> Feedback on the site and any additional information that you may like to see reflected on it can be forwarded to: ngls@unctad.org

INSTRAW - United Nations International Research and Training Institute for the Advancement of Women

INSTRAW's new website was launched in July this year. The website can be accessed in English, Spanish and French at: <http://www.un-instraw.org/en/index.html> and provides access to useful gender training material.

Evaluation of the International Conference on Renewable Energies (Renewables 2004) from a Gender Perspective

Ulrike Roehr

participation of women's groups in emerging networks and "follow-up processes" assured.

other sections and thus were able to add their views to the issues discussed.

As announced by Chancellor Gerhard Schröder at the World Summit on Sustainable Development in September 2002 in Johannesburg, Germany hosted, from 1 to 4 June 2004, an international conference on renewable energies. The conference – Renewables 2004 – charted the way towards an expansion of renewable energies worldwide, responding to the call of the Johannesburg Summit for the global development of renewable energy. A total of 3600 participants from 154 countries met in Bonn, among them official governmental delegations, including energy, environmental and development ministers, representatives of the United Nations and other international and non-governmental organisations, civil society and the private sector.

From a gender perspective, Renewables 2004 was a success. The principle of gender mainstreaming has been inserted in the political declaration, as well as the

High Level Segment

The third day of the conference, the High Level Segment, was a real highlight from a gender perspective, when the third draft of the political declaration was presented in a plenary session and discussed with ministers and delegates from 154 countries. This draft did not include any "gender language", except for two "...and women" insertions. When commenting on the draft, the South African Deputy Minister for Energy and Mining stressed the importance of strongly implementing gender mainstreaming and carrying out a gender analysis of all the conference results. Her demands won a round of applause from the audience and were followed by interventions from other ministers, including from Denmark and Sweden, supporting her demands. This concerted effort contributed in a significant way to gender being integrated into the political declaration, and concluded with the response from the Saudi Arabian representative, who congratulated South Africa for its "renewable" women and expressed the wish to have "renewable" women in his country as well. The above ministerial responses were a result of the lobbying carried out by the delegates of the "Women" stakeholder group.

The State Secretary of the German Ministry of Environment, Margarete Wolf, summarised the various discussion topics and arguments at the end of the day. She emphasised the contributions of the delegates of the "Women" stakeholder group, who had demanded that gender mainstreaming be implemented because of poor rural women's lack of access to energy, the implications of using biomass in household energy production on women's and children's health, as well as the low number of women in decision-making positions within the "old boys' networks" of the energy sector – very evident from the dominant male representation in the plenary hall. Interestingly, the State Secretary also took note of the demand from the "Women" delegation to subject every commitment in the International Action Plan, one of the outcomes of the Conference, to a gender impact assessment. The interventions from the "Women" delegation can be found in the summary of the results presented by David Hales from the Stakeholder Forum. In her final speech, the German Minister for Economic Cooperation and Development, Heidmarie Wieczorek-Zeul, emphasised her profound hope that there would be a significant increase in the number of women participants at the next conference. A hope naturally shared by the "Women" delegation.

Multi-Stakeholder Dialogue (MSD)

Renewables 2004 started with a one-day "Multi-Stakeholder Dialogue". In each of four sections – The importance, value and contribution of renewable energies; Promoting renewable energy - policy frameworks and regulatory certainty; Promoting renewable energies: financing the future; and Promoting renewable energy - capacity building - three or four stakeholder groups set out a contextual framework. These frameworks were then commented upon by the national representatives as well as by other stakeholder groups. The "Women" stakeholder group set the framework for the fourth section on capacity building, information and education. Furthermore, they successfully intervened in all of the

Gender and Energy Side Event

An official side event "Gender and Energy: a Key Variable in Poverty Alleviation and Participatory Energy Production" on the second day of the conference, organised by ENERGIA and LIFE, attracted great interest. Seventy people squeezed into a room designed for just fifty. Amongst the participants were the Ugandan Minister of Energy and Mineral Development, donor representatives from Sida, BMZ, GTZ and DGIS, and members from other networks and organisations such as AFREPREN, KITE and ENDA. ENERGIA members from Asia (Indira Shakya - GEWNet, Nepal), Africa (Lydia Muchiri - ITDG, Kenya) and the Pacific (Yogita Chandra - PEG, SOPAC Fiji)



Indira Shakya of GEWNet Nepal making a presentation at ENERGIA's side event at Renewables 2004 in Bonn, Germany (Photo: Ulrike Roehr)



The Stakeholder group "Women" was a force to reckon with at Renewables 2004 (Photo: Ulrike Roehr)

were panellists at this event. The main focus was on the presentation and discussion of projects from the South, with the exception of the German women's wind energy company "Windfang".

Advocacy and Lobbying by the "Women" stakeholder group

The nine delegates of the "Women" stakeholder group (from Africa, Asia, the Pacific and Europe) held a strategic meeting every morning, during which they elaborated upon and coordinated their contributions, discussed changes to the text of the political declaration, and decided which of the delegations to lobby for support. Given the importance of these meetings, the "Women" delegates were unable to participate in the parallel NGO meetings. However, this does not appear to have had a negative impact on the contributions by the "Women" delegation to Renewables 2004, as seen by the positive results of the Conference. Having done their best to integrate the gender perspective into the declaration, it was then a matter of waiting for the outcome.

On the final morning of the conference, the "Women" delegation finally found time to formulate its own commitment as part of the Action Plan. The commitment by the organisations represented in the "Women" delegation, entitled "Mainstreaming gender into energy policy, planning, and programmes at the international, regional, national, and local levels", includes the development and dissemination of methods, toolkits and instruments for the integration of the gender perspective into energy policy, planning and project implementation. The

fulfilment of the commitments will be reviewed at CSD 14 (2006) and CSD 15 (2007), which will both focus on "energy".

Preparations leading up to Renewables 2004

The success in Bonn was due in part to the substantial contributions made by members of the "Women" stakeholder group and technical advisors to ENERGIA in the preparatory processes leading up to Renewables 2004. Several crucial activities were undertaken:

1. Advocacy activities by women's groups in Germany to ensure that gender was one of the thematic issues included in the conference by the German organisers.
2. Participation in the International Steering Committee which was formed to advise the conveners regarding themes, structure and outcomes of the conference. This ensured that gender and energy issues were taken up as one of the themes of the conference agenda.
3. Participation in the International Advisory Group for the MSD to ensure that gender was on the agenda for the MSD input.
4. A gender review of the main preparatory document for Renewables 2004, the "Conference Issue Paper", to ensure that gender issues were included.
5. Development of a Thematic Background Paper, "Gender Equity and Renewable Energies", that provided a basis for discussions on the Conference Issue Paper and gave some background information and empirical facts for those interested.
6. Participation in the regional preparatory meetings for Renewables 2004 listed below, thus enabling gender issues to be included in the declarations from these meetings as one of the issues that parties from countries in Africa and Europe wanted to see

discussed and included in the outcomes of the Conference:

- "Renewable Energy on the Market", a conference organised by the Danish Government, in Sonderborg, Denmark, 17-19 September 2003.
 - "Civil Society Strategy Workshop" in Bonn, Germany, organised by the Heinrich-Böll-Foundation, German Forum for Environment and Development, and WWF Germany in 2003.
 - "Renewables for Africa: an Agenda for Bonn", a side event in Nairobi, Kenya, hosted by the Kenyan and German governments, 20 November 2003.
7. Participation in the Journalists' Seminar from 28-30 March, in Germany, which provided a forum to evaluate, before the conference itself, the agenda for Renewables 2004 from the viewpoint of gender and renewable energy, with special attention on the South.

All the outcomes of the conference, the summary of the Multi-Stakeholder Forum, and most of the speeches and presentations, as well as a list of participants can be found at the website www.renewables2004.de. This review, and other relevant information, is also available on the website www.genanet.de



◆ Ulrike Roehr is a civil engineer and social scientist, and has worked for many years as a teacher and project leader for eco-technical training and especially for

photovoltaics for women. Ten years ago she started to build up the "FrauenUmweltNetz" (women's environmental network) which aims to improve the participation of women in sustainable development and to reinforce gender aspects in environmental policies by providing studies and disseminating information for the support and evaluation of gender mainstreaming in environmental institutions. One of her main concerns is the sensitisation of gender aspects in sustainable energy and climate change issues in developed countries.

◆ Life e.V. / FrauenUmweltNetz,
Hohenstaufenstr. 8, D 60327
Frankfurt am Main, Germany;
Tel: +49.(0)69.740757,
Fax: +49.(0)69.740842,
E-mail: roehr@life-online.de

You are the President and General Manager of Soluz Honduras. How did you achieve this, especially when there are hardly any women in the electrification sector?

It was a process. When I began (with Soluz) in June of 1998, I mainly had administrative responsibilities, focused on the rental market. I then became the accountant and then, in August 2000, I was appointed General Manager of Soluz Honduras. The position was offered to me because, by then, I had been involved in all aspects of the business. I am also grateful to Richard Hansen (the President of Soluz Inc.), who had confidence in me. I am, of course, also thankful to God.

What roles do women play in Soluz Honduras's operations and in making its services accessible to rural customers?

There are many women involved. In fact, in the administrative areas (within the company) we have more women than men. Women are involved in customer service in Soluz's offices in San Pedro Sula and La Ceiba. Also, many women are involved in the network of Soluz Microcenters in the various communities, where they serve as representatives of the company. Fifty percent of the people in charge of the Microcenters are women and 60% of the clients are women. Microcenters attend to the needs of the various clients. For example, they collect the monthly payments from rental customers, collect information on service needs, and sell systems.

Are there any advantages of solar systems over grid electrification systems in terms of being more accessible to women?

Yes, there are some advantages. From a technical point of view, the PV systems are more approachable because they are lower voltage. Women can get involved more in terms of comfort and safety.

What about repairing things?

That depends on what type of service needs the client has. We try to train customers to do as much as possible. So when it comes to changing light bulbs or changing fuses, or cleaning the system or servicing the battery, the customers or the person in charge of the local Microcenter are trained to do this. If there are more significant needs, then they call in a company technician - and they are all men.

From your experience, do women decide whether their households should have electricity?

Definitely yes, the woman is very involved in that. Often she is the one making the decision as to whether they are going to be getting electricity or not.

What sorts of impacts have you seen on women when they have become customers of

Meeting **ENERGIA** Members



Loyda Alonso

**President and General
Manager of Soluz Honduras**

Interview by Mitali Sen

Soluz Honduras? How have they used the energy services?

The impact is very positive. The systems are often in small rural stores, sewing shops (for lighting to help in the sewing) or used to power televisions so that women can watch programmes. The light is also used for reading. Some typical income-generating applications are these small rural stores and sewing shops, plus chicken farms, where the night-time lighting encourages chickens to eat more and fatten up more quickly. Also pool halls and restaurant businesses use the systems for lighting and entertainment.

Can you give us an example of a particular woman client that has benefited from the PV systems?

Carmen Ochoa is an example of a very satisfied customer of Soluz. She has had solar energy since 1994. She actually bought her first system from a predecessor of Soluz that was exploring the market for PV systems in Honduras. She owns a small rural store in the community of La Fortuna, on Honduras's north Atlantic coast. In August 2002, Soluz installed a PV refrigeration system for her. The community has more than a 1000 residents, plus some smaller villages nearby, but she has the only refrigerator in the entire area. She has seen a big increase in her profits because of it. She is now able to sell soft drinks, margarine, milk, and some types of meat products, like sausages.

In a study we recently did on electricity and fuelwood use in India we found that having electricity reduced the amount of time women spent collecting fuelwood and

processing food. Have you found anything similar in your programme?

If you look at grid electrification that might be the case. But, in our case, that hasn't been the experience because these are fairly low power systems and are not used for cooking. There are no solar cookers. We are planning on working more with LPG (propane), with the thought of introducing it so that people can use it for cooking, using the same Soluz sales and service infrastructure.

Most people would argue that gender issues have very little context in the electrification sector. Would you agree?

No, I disagree. Electrification has tended to be a field in which the involvement of women has been limited. Lately, this has been changing which is a very good thing. Women have the ability to make decisions and to be involved, and it is important that they be taken into account at all levels and in all areas. We are seeing more women in technical and administrative roles. The traditional grid-electrification sector, in particular, has been very male-dominated. But that is also changing in Honduras. The manager of the national utility for this region of Honduras is a woman.

What are Soluz Honduras's future plans?

Soluz plans to continue to grow and to take the technology to many more families. There are now approximately 3900 families that Soluz Honduras has energised since 1998. This includes around 1000 rental customers, system sales to households, and sales made through the network of dealers.

Thank you so much for your time, Loyda.

It has been my pleasure. ■

◆ Loyda Alonso has been General Manager of Soluz Honduras since 2000 and President since 2003. Soluz Honduras is a private Honduran rural energy delivery company (REDCO), a subsidiary of Soluz, Inc. USA. It offers PV systems through cash, credit, or on rent to individual households, small businesses, community organisations in unelectrified rural areas. Soluz Honduras is based in Honduras's industrial centre, San Pedro Sula, Cortes, and operates Soluz Service Centres in San Pedro Sula and La Ceiba, Atlantida. Soluz Zone Supervisors, operating out of these centres, manage networks of Soluz MicroCenters, rural micro-enterprises collecting payments and handling service requests under contract to the company. (www.SoluzHonduras.com and www.SoluzUSA.com).

◆ Soluz Honduras, S.A., Edif. Andalucía 3ª. Ave. S.O. 10 y 11 calle, San Pedro Sula, Honduras; Tel. +504 557 5127, +504 557 5270, Fax +504 557 5129, E-mail: soluz@sulanet.net

The Impact of Electrification on Women's Lives in Rural India

Women in rural India spend most of their day on labour intensive household tasks. Household electrification makes a tremendous difference for rural women, reducing the drudgery of routine chores, and creating a better balance between work and leisure. India's rural electrification programme should therefore place more emphasis on household electrification, which will directly benefit women.

Douglas Barnes and Mitali Sen

Domestic energy concerns loom large for women in a country where 74% of the population reside in rural areas with uneven access to infrastructure. Cooking for the family, processing grains, carrying out household chores, reading or watching television during leisure hours all become major challenges. In a majority of the households, a typical day begins at the break of dawn with women and sometimes children walking some distance to fetch water in pots or even longer distances to collect wood and other biofuels for fuelling their traditional stoves. Just cooking meals occupies a good part of a woman's day, because not only does she have to physically procure the water and the biofuel, but also the grains and spices used in Indian cooking often have to be manually processed before they can be used. For households that have no access to electricity, household chores are often constrained to daylight hours. In colder regions, firewood also has to be collected for keeping homes warm. This leaves little time for engaging in paid work or enjoying some degree of leisure. Moreover, reading for schoolwork or leisure is also often dependent on daylight hours as the commonly used kerosene lamps provide very poor quality lighting. Thus, the opportunity costs of restricted access to domestic energy have profound effects for all members of the family, but primarily for women who are the main managers of household biomass energy.



Women in rural India spend many hours on labour-intensive household chores (Photo: ESMAP archive)

This article highlights the tremendous difference that access to improved energy services in the form of household electrification can make to the lives of rural women. Of course, the benefits of rural energy services will differ by region, class, caste, education, and household occupation, but the overall pattern that emerges is that the benefits of improved rural energy services for rural women in India are substantial.

The focus of this article is on the implication of energy services for the time spent by women on various daily activities. These include food preparation, childcare, income-generation work, fuel and water collection, and many others. The overall pattern of time spent on

such activities has been analysed for over 5,000 women in rural India based on a household energy survey conducted in 1996 in which the main cooks in a household were asked about their use of time during the previous day. Thus, in interpreting these findings, it is important to bear in mind that some of the described activities are performed daily (e.g. fetching water) while others may be engaged in once every few days (collecting firewood), or even less often.

Domestic Use of Electricity in Rural India

Due to the low levels of cash income in the rural areas of India, electricity is used in relatively small quantities compared to urban households. The consumption level is also closely related to household income. States with the highest rural household income levels have the highest level of electricity adoption and consumption. The households that do adopt electricity use it for a variety of different domestic purposes.

Rural households typically possess several different kinds of devices and appliances (Table 1). At minimum, houses that have electricity have some type of lighting fixture. After lights, quite understandably in a hot, tropical country such as India, the most common use for electricity is to power fans. Around 57% of the households own a ceiling and/or table fan. The next most common use of electricity is for televisions. Despite their high cost, televisions rank among the top three uses of electricity with 41% of the electrified households owning a set. The adoption rate for irons by households with electricity is only slightly lower than that for televisions.

Table 1: Distribution of Appliances in Rural Households

| Appliance or device | Percentage of households with electricity | Percentage of households without electricity | Percentage of all households |
|---------------------|---|--|------------------------------|
| Electric lights | 100 | 0 | 69 |
| Kerosene lamps | 43 | 55 | 48 |
| Television | 41 | 0 | 25 |
| Fans | 57 | 0 | 31 |
| Iron | 37 | 0 | 23 |
| Radio | 36 | 5 | 24 |
| Refrigerator | 7 | 0 | 4 |
| Mixer/grinder | 7 | 0 | 4 |

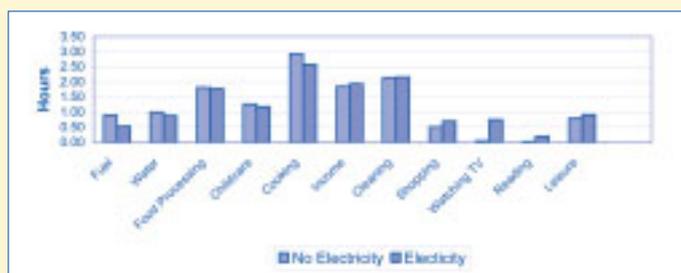
Source: ESMAP Energy Survey, 1996

Indian cooking involves spending hours processing foods, and the adoption by women of mixers or grinders, along with refrigerators and electric stoves, would greatly reduce this work. Unfortunately, the ownership of such appliances is rare. One can understand the reluctance of households to invest in fridges and stoves given their high costs and the problems in using them in an environment with an unreliable electricity supply. However, the reasons for not purchasing mixers or grinders are less clear.

Does Electrification Make a Difference?

Women from households with electricity clearly lead a more-balanced life between work and leisure activities. Compared to women in households without electricity, they spend less time collecting fuels, fetching water, and cooking, and instead spend more time on earning an income, reading, and watching television (Figure 1). They also spend slightly more time engaged on housework and other miscellaneous activities. The use of lights in such households enables women to continue housework beyond sunset. Out of all the activities, electrification seems to have the greatest effect on the time devoted to collecting fuel, cooking, and watching television. The presence of a television in a household increases the differences even further, resulting in more TV viewing and, perhaps more surprisingly, less time spent on fuel collection.

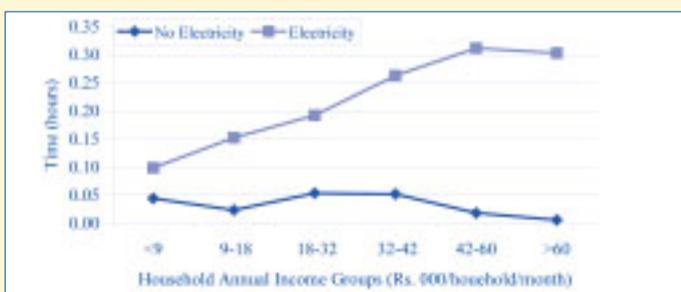
Figure 1: Time Allocation of Women in Rural India: Comparing Households with and without Electricity



Source: ESMAP Energy Survey 1996

Perhaps the most interesting result on the impact of electricity involves the time spent by rural women in reading. The probability that a woman will read is very strongly related to the presence, or absence, of electricity in the home. Regardless of income level, virtually no reading takes place in households without electricity. About 11% of our sample reported spending some time reading on the day surveyed. On average, women who did spend some time reading did so for about one hour a day. The pattern that emerges is that higher-income women do spend more time reading than their counterparts in the lower-income households. However, lower-class households with electricity have a much greater likelihood of reading than the ones without electricity. Therefore, it would seem that high-quality lighting, made possible by having electricity, makes it more likely that women will read in the evening regardless of their income class although the amount of time spent reading does seem to increase with income (Figure 2).

Figure 2: Time Spent Reading by Household Income



Source: ESMAP Energy Survey 1996

As noted earlier, TV ownership was, perhaps surprisingly, widespread given the cost of the appliance relative to incomes. More than 40% of homes with electricity had invested in a set. While the entire family may well enjoy it, it is striking how the majority of women, despite their many responsibilities, seemed to make the time to watch TV if

the household owned a set. On average, they spent almost two hours a day pursuing this form of leisure. Although there is no record of the programmes they watched, this use of electricity has potential for continuing education and information dissemination.

While it is undeniable that household electrification has a positive impact on women's lives, in some ways it could do more for rural women. Appliances such as grinders and refrigerators are rare in rural areas. The considerable amount of time that women spend processing food (almost two hours per day on average) in rural India could be easily reduced through the use of a simple, inexpensive grinder. However, less than one in ten households has invested in one, a similar number to those that own a refrigerator, despite the latter being relatively far more expensive. As households add new appliances, the impact of electricity on rural households will become even greater.

While household income, education, caste, occupation, and village infrastructure all affect women's use of time, household electrification seems to have a beneficial impact even after controlling for all such factors.

However, the use of those appliances that would directly reduce the energy and effort required of women is almost nonexistent in rural India. Since household decision-making remains largely the prerogative of men, the needs of women remain largely ignored or unmet (IFAD 2000). Developing greater awareness among people of the potential uses of electricity for easing the lives of women, as well as developing markets for products targeted for use by women, should be a priority. If more than 40% of electrified homes have been able to afford a television, then an electrical appliance such as a mixer/grinder should be well within the means of many households.

Conclusions

Rural electrification has a significant impact on women's time allocation and on reducing the drudgery in their lives. Thus, a rural electrification programme with an emphasis on providing a reliable service to a wide range of rural households could be justified on its beneficial impact on women. Instead, the rural electrification programme in India has stressed subsidies for agricultural production. While promoting agricultural production through irrigation using electric pumps is an important and legitimate goal, in practice the extensive agricultural subsidies have meant that the provision of electricity to rural households has been given lower priority. As a consequence, while a high percentage of villages in India now have electricity, the percentage of households within those villages with electricity is lower than it could be. Therefore, from the point of view of reducing women's drudgery, the rural electrification programme needs to place a greater emphasis on providing a service to rural households. Homes are traditionally seen as a "feminine" domain, and cultivation as a "masculine" one. Mainstreaming gender into infrastructure policies needs to begin with the recognition that there are in-built policy biases towards what are traditionally perceived as masculine (and by extension "more productive") domains. Women are actually working very hard, but without access to electricity, their productivity remains limited, as does their status. ■

◆ Contact details of the authors, who are also the guest editors for this issue, are found on page 3.

◆ The authors of this article have been involved in writing the report, "The Impact of Energy on Women's Lives in Rural India", a joint UNDP/ESMAP publication that can be read at: [http://wbIn0018.worldbank.org/esmap/site.nsf/files/Final_India_for_Web.pdf/\\$FILE/Final_Indiafor_Web.pdf](http://wbIn0018.worldbank.org/esmap/site.nsf/files/Final_India_for_Web.pdf/$FILE/Final_Indiafor_Web.pdf)

Electrification through Micro-Hydro Plants in Rural Nepal: A Gendered Perspective

Micro-hydro has proved to be a very successful form of rural electrification in Nepal. Men and women in rural villages praise its benefits. Yet, the impact of micro-hydro could be greater if the focus of policy changes from supply to demand, if women are able to participate actively at all levels, and if rural electrification brings about social and economic change, especially for women.

Ishara Mahat

Nepal is a country where the rural infrastructure is extremely limited, especially in the transport, communication, and electrification sectors. Due to the mountainous geography of the country, many rural villages have no access to grid electricity. Only 1% of the total energy consumption in the country comes from electricity. Only 14% of the total population, and 3% of the rural population, have electricity in their homes (CES, 2000).

Micro-hydro plants for rural electrification have been received enthusiastically in Nepal because they are both decentralised and environmentally friendly. Government and non-government organisations, and the private sector, are actively involved in promoting micro-hydro power plants with subsidies available from donors and the government (NPC, 1998; Adhikari, 1998). However, the focus of the programmes has primarily been on supply rather than on the sociocultural and economic conditions of rural households. The gender dimension has particularly been ignored.

The Rural Energy Development Program (REDP), supported by UNDP, has used a holistic approach to launch an alternative energy initiative in Nepal. The primary emphasis of the programme has been the promotion of micro-hydro plants, not only for providing electricity but also for improving the quality of life of the rural population (REDP, 1997). Women's empowerment is one of the six principles of the REDP through which women's participation is encouraged in village-level energy planning (REDP, 1997). REDP has implemented a rural energy programme in 15 districts of Nepal, and Kavre is one of the first districts located in the mid-hill region.

Planning Process for a Micro-Hydro Plant

At the village level, there has been a concerted effort to involve local communities, but women's participation was limited to mobilising savings funds and contributing labour in the construction process. They had little input in decisions related to the project, such as the location of the power mills. This has a large impact on women's work since they carry the grain to the mill.

Operation and Management of the Micro-Hydro Power System

To promote community mobilisation, the REDP forms community organisations (COs) involving one male and one female from each household. The COs are responsible for carrying out community development activities including the construction of the infrastructure for rural energy. The micro-hydro plant is managed by a Village Energy Committee (VEC). The VEC is responsible for continuously monitoring the micro-hydro scheme and the CO's activities, collecting

electricity charges, managing funds, and solving any energy-related problems in the village.

However, not all the VECs have functioned efficiently. While the one in the village of Pokharichouri operated smoothly, in Nayagaon and Katunjabeshi there were frequent breakdowns in electricity supply brought on by the negligence on the part of operators and the local people. Little attempt was made to collect payments for electricity.

In some villages, local people were not aware of how to conserve electricity. For example, in the village of Nayagaon, the street lamps were on continuously. Even at the household level, the lights would never be turned off in the kitchen. A woman from the Tamang ethnic group in Nayagaon defended the practice saying, "We have paid for the light, and thus we want to have full use of it." Other women argued that the only way they knew that the power was on was to keep the lights on throughout the day. Additionally, women received no training in even minor repairs. If the power failed, they had to rely on the male village technician, or male members of the family, to repair it. Thus, the technology was controlled by men.

Changes in Village Environment

Despite these problems, micro-hydro electricity was much welcomed by the local people. Local people saw electricity as increasing the potential for creating employment opportunities, improving access to radio and television, and giving the family the ability to host social gatherings in the evenings. The use of lights made women's daily work easier. In some villages, the micro-hydro canal was a good source of irrigation water. For instance, in Mangaltar, the local farmers were able to increase productivity of garlic and boost their income.



Women's group participating in focus group discussions (Photo: Field Survey, 2002)

Reduction of Women's Drudgery

Access to micro-hydro mills has brought great relief from women's drudgery. Women, who used to spend six to eight hours per week pounding and processing grain, now spend only half an hour, excluding travel time, on this task. In a focus group discussion, in Pokharichouri village, a woman commented, "We have more leisure now and more time to chat with friends". However, in most cases, the time saved is used for other household chores. With access to lights, they were able to do more work in the early morning and at night. The concept of sharing chores with male members and other women working outside the home is foreign to these women. Moreover, there are few income earning opportunities available at the village level.

Promotion of End-Use Activities

The two main uses of micro-hydro electricity in villages are lighting and milling. In some villages it is used only for lighting. Although the promise of other potential uses for a range of activities is great, it remains largely unfulfilled. For instance, electricity can be used for socioeconomic enhancement, by conducting night literacy classes, poultry farming, and establishing handlooms and craft work for women at the village level. A few women have, however, been involved in incense making and soap production at night with the help of the lights.

Gendered Implications of Micro-Hydro Plants (MHP)

The MHP have positive implications for all people, but especially for women in reducing their labour and the time spent in processing activities, as mentioned above. It was observed that there has been a change in the gendered division of labour associated with the power mill located in the village. For instance, men now sometimes carry the grain to the nearest mill, which was rarely the case with the traditional water mill located far from the village. Similarly, the awareness programme, supported by the REDP, has brought about a positive change in women's and men's attitudes towards women's mobility and participation in development activities. This awareness has also enabled women to control the gambling habits of men. Women's involvement in community organisations provides women with a voice for their social and economic independence.

Rural electrification has further positive implications for women in terms of the convenience of their work and reduced workloads. Here are a few suggestions for improving electricity services, ones that would especially enhance the socio-economic status of rural women:

Demand-oriented Rural Energy Policies

Rather than focusing mainly on energy supply to improve the rural economy, rural energy policies at the macrolevel should have a demand focus addressing the needs and priorities of local people including women. Energy interventions should suit the existing biophysical, social, and economic conditions. For instance, adoptability and affordability are two important criteria, and gender should become an important aspect of rural energy programmes and policies. Hence, the role of women in managing the rural energy system and their concerns regarding rural energy needs should be given due importance in planning any energy intervention.

Increasing Women's Participation in Micro-hydro Initiatives

Rural electrification will not be effective unless it addresses the diverse social and economic needs of local people, especially women who lag behind socially and politically. Although women are equally represented in Village Energy Committees, they are often silent or not taken seriously in these meetings. For example, a woman from Pokharichouri mentioned that "If we talk in the meetings, men do not listen. We agree with whatever they say."

Increase Women's Skills and Knowledge in Repair and Maintenance Activities

Most of the time, women are the ones using the electricity at the household level. It is therefore essential to train women in small repair and maintenance activities.

Integration of Rural Electrification with other Development Activities

Electricity is not an end itself, it should be integrated with other social and economic activities which enable local people, especially women, to enhance their socioeconomic status. For instance, adult literacy programmes could be conducted at night in villages with micro-hydro electricity, and this would enable women to read and write and to become aware of gender, environment, and energy issues. Similarly, electricity from micro-hydro systems could power small-scale cottage industries, such as handlooms, handicrafts, and bakeries, if it is integrated with credit, marketing, and extension services. ■

References

- *CES (2001) CES: A Profile*, Center for Energy Studies, Institute of Engineering, Tribhuvan University, Kathmandu, Nepal
- Adhikari, D.P. (1998) 'Financing Renewable Energy Technologies in Nepal: Issues and Emerging Challenges', in Shrestha, J. Bajracharya, T.R. and Vaidya, B. (Eds) *Role of Renewable Energy Technologies for Rural Development*, Proceedings of International Conference, Institute of Engineering, TU Nepal, 126-129.
- *The Ninth Plan (1997-2002)*, His Majesty's Government, National Planning Commission, Kathmandu, Nepal.
- REDP (1997) Annual Report 1997, Rural Energy Development Program (REDP), Nepal.

◆ Ishara Mahat recently joined the Institute of Women's Studies and Gender Studies at the University of Toronto as a visiting scholar after completing her PhD on gender and rural energy from Massey University, New Zealand. Previously, Ishara worked with the Canadian Cooperation Office in Nepal managing gender mainstreaming projects. Her expertise in gender and development, rural community development, and gender and rural energy has been developed through her academic and professional involvement in various government and non-government agencies in Nepal and abroad.

◆ Institute of Women's Studies and Gender Studies, New College, 40 Willcocks Street, University of Toronto ON, M5S 1C6, Canada. Tel: +1.(0)416.9783668; Fax: +1.(0)416.946 5561; E-mail: i.mahat@utoronto.ca

Ensuring Women's Role in Rural Electrification Programmes in Bangladesh

The Economic and Social Impact Study of the Rural Electrification Programme in Bangladesh reveals that electricity has a profound impact on women's socioeconomic status. However, electricity supply has benefited more men than women, and the challenge therefore is to tip the balance in favour of women.

Sadaka Halim

This article¹ highlights some of the key findings on how electricity has contributed to the socioeconomic enhancement of rural women in Bangladesh and has given them more opportunities for sustainable livelihoods. The study relied on lengthy interviews in 3700 households and establishments, residential, industrial, commercial, and agricultural, evenly dispersed throughout rural Bangladesh. The study has collected data from three categories of households as follows: i) households with electricity in electrified villages; ii) households without electricity in electrified villages; and iii) households without electricity in non-electrified villages. Gender-specific data enable us to compare the situation of women and men, and identify their relative advantages and disadvantages. A qualitative summary below of a few of the major findings on women's socioeconomic status indicates the nature and breath of the impact of electricity. The findings reveal that electricity has a profound impact on women's socioeconomic status and, further, that these impacts are multidimensional.

The supply of electricity in rural areas has increased the opportunities for employment of women in those households with electricity. The study (HDRC report, 2002) also reveals that industrial activity has increased and led to increased employment and the growth of a skilled female labour force.

However, according to the interviewed women, the prevailing gendered division of labour has not changed with electrification. Nevertheless, it has given these women an advantage in organising their work to suit their convenience. Crop threshing in households with electricity is usually done in the evening. Moreover, the practice of using paddy husking mills and spice-grinding mills is more evident in the electrified than the non-electrified villages. This indicates that the existence of mechanised mills has reduced the workload of women in the households with electricity, allowing them to become more involved in other income-generating activities. In addition, in households with electricity, women have more leisure time to watch TV and listen to the radio, and this contributes to a widening of their horizons. Women's knowledge of gender equality issues is much higher in households with electricity than in households without. Awareness on a range of gender equality issues (equality of men and women in terms of access to resources; to equal wages for men and women; women trafficking; punishable crime offences; child trafficking; acid throwing; informed choice over family planning and the right to participate in elections) was measured, and the overall knowledge coefficient for households with electricity was 0.80, while it was only 0.48 for households without electricity. The supply of electricity has enhanced women's mobility. Women can now easily move around their vicinity, as well as visit neighbours in the evenings and go to the market etc. There is greater participation in income generating activities, better utilisation of NGO-sponsored credit, and increased awareness of fundamental rights and gender inequality issues.

Electricity has enhanced the quality of education for children, both by

extending the time in which they can study and by creating a comfortable learning environment through electrical appliances. For landless households with electricity, the longer study hours for students and increased time spent on sociocultural development by the female household head, have acted as catalysts for reducing human poverty.

In terms of health, it was found that electricity did not reduce the level of sickness in the family. However, a higher percentage of childbirths are assisted by medically-competent people in households with electricity. Further, availing oneself of antenatal care, tetanus toxoid injections, and postnatal check ups is also more prevalent.

Therefore, the more that rural electrification services respond to the women's needs, the more successful will be the Rural Electrification Board's focus on poverty reduction.

Providing electricity at the household level is crucial in ensuring better living standards. From the study's (2002) results, the use of the additional time attributed to electricity has facilitated both the male and female electrified-household members to explore a new range of activities as well as extending the time available for old ones.

However, the supply of electricity has given men more opportunities than women. Thus, the challenge remains to incorporate women more effectively, as agents of social change, within the rural electricity power structure so that women who are the largest consumers can bring meaningful changes to their lives. However, only providing electricity and involving women in income-generating activities will not bring real change in their status if women's powerlessness to avail themselves of the various opportunities prevent them from changing their situations. Therefore, the electricity sector needs to involve more women in the top levels of management, and in the implementation process, to formulate more gender-specific policies. It is in this context that rural electrification should aim at changing rural women's overall socioeconomic and political status. ■

1. *This paper has been drawn from the author's earlier work on Impact on Gender Dimensions: Women's Empowerment, Changing Status and Modernization Effects, in the report on the Economic and Social Impact Evaluation Study of the Rural Electrification Program in Bangladesh, October 2002, by HDRC (Human Development Research Centre), NRECA International Ltd in partnership with the Rural Electrification Board of Bangladesh and USAID for the Rural Power for Poverty Reduction Program (USAID CA388-A-00-97-0040-00), Dhaka, where the author worked as a gender consultant*

◆ Sadaka Halim is an Associate Professor of Sociology and Women's Studies at the University of Dhaka, Bangladesh. Having obtained a Bachelors and a MSS degree from the University of Dhaka, she then got her MA and PhD degrees in Sociology as a Commonwealth Scholar from the McGill University, Canada. Sadaka Halim's main research fields are gender, environment, development and indigenous issues.

◆ University of Dhaka, Dhaka 100, Bangladesh.
E-mail: sadeka@bangla.net

Gender Mainstreaming in the Bangladesh Rural Electrification Board

A Gender Equity Strategy and Action Plan has been integrated into the Bangladesh Rural Electrification Board's Master Plan. Implementation of this plan will be the first gender mainstreaming exercise in the energy sector in Bangladesh, and possibly in the world.

Joy Clancy, Lailun Nahar Ekram, Sadeka Halim and Nazmunnessa Mahtab

In May 2003, ENERGIA was invited by the Royal Netherlands Embassy in Dhaka, Bangladesh to develop a comprehensive Gender Equity Strategy (GES) and Action Plan (AP) for integration into the Bangladesh Rural Electrification Board's (REB) Master Plan. A gender equity strategy is a multifaceted instrument for organisations, including policy, ways of working and the provision of resources and facilities, for reaching specified objectives. It is a tool of gender mainstreaming; a way of ensuring that policy decision-making takes account of women's and men's different interests and needs, in this case both as employees and clients. The Action Plan is a means of operationalising the gender equity strategy.

Despite the strong commitment by the Government of Bangladesh (GoB) to eliminate all forms of discrimination against women and girls, the follow-up activities by the Ministry of Women and Children's Affairs, to the Beijing Platform for Action, have unfortunately not as yet included the energy sector. However, by integrating the GES into its Master Plan, and implementing the Action Plan, the REB will undertake not only the first gender mainstreaming exercise in the energy sector in Bangladesh but also possibly in the world.

Such an exercise benefits the REB and the rural electricity cooperatives (Palli Bidyut Somities - PBSs) that supply the consumers by:

- Increased profitability through an extended consumer base.
 - Recognition of a wider pool of capable, well-educated potential employees on which to draw.
 - Enabling the organisations to comply with GoB Gender targets.
- The overall aim of the GES is to create a "win-win" situation for the REB, PBSs, their employees and consumers.



Literacy programmes for women held in the evening can contribute substantially to empowering them (Photo: Lailun Nahar Ekram)

The ENERGIA Team and their Methodology

ENERGIA, represented by Joy Clancy and Elizabeth Cecelski, developed the GES with a team of local counterparts, headed by Ms Lailun Nahar Ekram from ECBL in association with Dr Nazmunnessa Mhatab and Dr Sadeka Halim. The methodology employed to develop the GES consisted of four components:

- (i) Consultation with the REB and PBSs, NGOs, development partners, financial institutes, local communities, PBS board members, and consumers in order to identify issues and elements that should be the focus of the GES.
- (ii) An analysis of existing policies, official reports and documents; as well as learning from the experiences of an earlier GES exercise in the Local Government Engineering Department.
- (iii) Consultations with the REB's and PBSs' officials and staff on their existing organisational structure and human resources policies.
- (iv) A Feedback Workshop on the draft GES and AP with invited resource persons and stakeholders, including staff from the REB and PBSs.

The final draft of the GES and AP was presented to the REB in May 2004.

Findings: Existing Status of Women as Consumers, Managers and Employees

The impact of electricity on the lives of rural women in Bangladesh is described in more detail elsewhere in this issue of ENERGIA News. However, it is worthwhile repeating that electricity in rural areas has increased the employment opportunities for women in electrified households which, in turn, appears to translate into greater control over their income than women in non-electrified households. Access to TV and radio are considered important factors in changing attitudes. Unfortunately, access to electricity does not appear to have influenced the prevailing gender division of labour: women's responsibilities have remained largely the same as those of their counterparts in the non-electrified households. However, in electrified households, women have more flexibility and are able to organise their work according to their convenience which they see as a benefit.

"Our household work has reduced a lot because of electricity. Apart from learning about various issues like vegetable gardening and poultry through TV/Radio, we are able to spend more time in teaching kids due to this additional time". (Focus Group discussion with female household members; Village: Rahmatpur, Union: Rahmatpur, Thana: Babuganj, District: Barisal) HDRC (2002).

The REB currently supplies electricity to 67 PBSs. Each PBS's members elect a Board of Directors which oversees PBS affairs at the policy level, planning and control. There are a small number of reserved seats for women on each Board. These reserved seats exist because it is considered unlikely that women will be directly elected to the Board since few women qualify either to stand for election to the PBS Boards or to vote. The inequality in voting rights arises from the way in which PBSs define a "consumer", the person entitled to vote, as the legal owner of the house with a connection. Since the legal owner is usually a man, this definition of "consumer" results in few women being so designated. Thus, despite the fact that women, in male-headed households, are the main users and managers of household electricity they are not able to participate in the democratic process related to decision-making on PBS policies.

The women advisors, unlike the male members, have no voting rights. This situation contradicts the democratic principles that underlie the establishment of the PBS system. It denies a broader cross-section of women a real voice in the running of the PBSs.

The number of women professionals in the REB and the PBSs is very small. For example, as of mid-2003, within the REB, only five Deputy Directors, out of a total of 25, were female. Only one Assistant Engineer out of 152 was female. In the PBSs, only one Class I officer (Senior Management) out of 591 officers was a woman. Such a small representation at senior levels gives women negligible opportunities for making inputs and influencing outcomes at the policy, institutional and implementation levels, thus creating considerable gender imbalance in decision-making and outcomes. A particularly disturbing finding is that sexual harassment is a generally unspoken but serious problem for the women employed in the REB and the PBSs.

Issues to be Addressed

The GES aims to create an environment in which women and men have equal input into the policy planning, operation and management

of REB and PBS projects and programmes, so that women and men as consumers will benefit equally from rural electricity programmes. In order to achieve this, the ENERGIA team identified three categories of issues which need to be addressed by the GES: organisational issues (creating more gender-sensitive, women-friendly organisations), allowing women to reach their full potential as employees of the REB and the PBSs, and empowering rural women as electricity users. The GES has, within these three categories, nine components, which in turn, provide the framework for the Action Plan:

Organisational Issues

- Institutional Strengthening
- Funding and Resources
- Socioeconomic Baseline Database System
- Monitoring and Evaluation
- Communication and Networking

Increasing Gender Equity of Women Employees

- Human Resource Development
- Social Safety
- Support and Logistics Facilities

Table 1: Recommendations for different levels for implementing successfully the GES and AP.

| Macrolevel REB Policies | Mesolevel PBS | Community Level Rural Consumer |
|---|--|--|
| <ul style="list-style-type: none"> • Incorporation of the GES and the AP into the REB Master Plan. • REB includes, in its policies, its commitment to a social wellbeing approach towards women, in line with the policies of the GoB. • REB acknowledges that the principles of gender equity extend beyond the Master Plan period. • The development of a strategy to co-ordinate and cooperate with relevant ministries, institutes and donor agencies in the implementation of the GES and the Action Plan. <p>Implementation</p> <ul style="list-style-type: none"> • The establishment of a Gender Focal Point within the Socio-economic Evaluation and Monitoring Cell, and the allocation of sufficient resources for the implementation of the GES. • The creation of gender-sensitive databases on employment and consumers. • The establishment of a system for the monitoring of the implementation of the AP and the updating of the GES. • In order to help overcome resistance to policies on gender equity, the development of an awareness raising programme for REB employees on the need for, and the benefits of, gender mainstreaming. • Translation of the GES and AP into the Bangla language. | <ul style="list-style-type: none"> • PBSs to work with the REB to develop a strategy for addressing the gender issues as set out in the GES and the AP. • PBSs to develop a capacity building programme to provide skills to their employees for applying gender sensitisation, gender analysis and gender impact assessment skills at all stages in the REB project cycles. • PBSs to develop capacity building that creates a more gender-sensitive approach to recruitment, promotion, and staff retention. • PBSs to adopt a more gender-sensitive approach in working with clients. | <ul style="list-style-type: none"> • The formation of Village Electricity Committees in each PBS with a good gender balance from Electrified Households, Non-electrified Households, NGO, and CBO representatives. • Establishment of training courses for women and men in the PBS areas to provide the knowledge and skills necessary for meaningful participation in management and decision-making on the VECs and the PBS boards. • Training of men to practice gender-sensitivity in creating space for women's voices to be heard. • The creation of partnerships between PBSs and CBOs so that these organisations can help rural people develop their advocacy skills. • The creation of partnerships between PBSs and NGOs, CBOs and other organisations within Civil Society so that these organisations can play a vital intermediary role in advocating, promoting and the awareness-building of gender equality within the VECs. • The development of visual and spoken media (such as plays) to promote the use of electricity. • The development of women's communication skills to enable their effective participation in the PBSs. |

Rural Women's Empowerment

- Participation and Participatory Processes

For each activity, within the AP, a measurable indicator is given, along with a timeframe for implementation and an identified responsible stakeholder for implementing the activity. Each component has its own specific output and outcome. Table 1 lists some recommendations for the three levels (REB, PBS and community) which can lead to the successful implementation of the GES and AP.

Reference

HDRC (2002), *Economic and Social Impact Evaluation Study of Rural Electrification Program*. Human Development Research Centre (HDRC) under contract with NRECA International Ltd. (USAID CA 388-A-00-97-00040-00)



Access to TV and radio has given women more opportunities for learning and leisure (Photo: Lailun Nahar Ekram)



◆ Joy Clancy is a Reader (Associate Professor) in Development Studies with the Technology and Development Group, University of Twente, The Netherlands. She is a founder member of ENERGIA, and is currently the Technical Advisor on Capacity Building and Regionalisation. Joy Clancy is a co-convenor of the Gender and

Development Working Group of the European Association of Development Institutes (EADI). Dr Clancy's research has focused, for more than 20 years, on small-scale energy systems for developing countries. Gender and energy has been an important factor addressed in this research. She has carried out research on rural electrification in Botswana, Swaziland, and Namibia. Joy Clancy has developed and delivered training courses on gender and energy, which focus on gender analytical tools for use in the energy sector, both at the policy and project level. In addition to her academic duties, Dr Clancy has carried out a number of consultancy assignments for international development agencies.

◆ Contact details on back cover.



◆ A graduate of Bangladesh University of Engineering Technology and a Fulbright Scholar, Lailun Nahar Ekram attained her Masters Degree in Architecture from the State University of New York, Buffalo, USA. Lailun Nahar Ekram is a researcher, practitioner, technical reviewer, strategist and an academician. She set up the first woman-headed engineering and architectural

consultancy firm in Bangladesh, Engineers and Consultants Bangladesh Ltd., and is the Chairperson of the Asian Development Technology Centre – a research development NGO. In the energy sector, Lailun Ekram is a consultant to the Bangladesh Rural Electrification Board since its inception and as a gender researcher, is the author of the Gender and Energy Status Paper for the government of Bangladesh.

◆ Engineers and Consultants Bangladesh Ltd., House # 8/A, Road # 50, Gulshan - 2, Dhaka 1212, Bangladesh.
E-mail: ineadtc@bdcom.com

◆ Nazmunnessa Mahtab is a founder member and present Chairperson of the Department of Women's Studies, University of Dhaka. She specialises in Gender and Development, Violence Against Women, CEDAW and Women's Rights, and Gender and Governance. She is associated with many women's organisations, both in Bangladesh and abroad, and has conducted numerous research studies on diverse aspects of women's issues and problems. As a gender consultant, she has worked with government agencies as well as NGOs. In addition to her normal job of teaching and research, she is actively engaged in designing, organising, and conducting gender orientation training programs for government officials, women members of local government, NGO personnel, members of civil society, and university students.

◆ House #1, Road # 34, Green Heritage (Flat # 4E), Gulshan, Dhaka 1212, Bangladesh. Tel: +88.(0)2.8813621;
E-Mail: mahtab@bangla.net

◆ Sadeka Halim is an Associate Professor of Sociology and Women's Studies at the University of Dhaka, Bangladesh. Having obtained a Bachelors and a MSS degree from the University of Dhaka, she then got her MA and PhD degrees in Sociology as a Commonwealth Scholar from the McGill University, Canada. Sadeka Halim's main research fields are gender, environment, development and indigenous issues.

◆ University of Dhaka, Dhaka 100, Bangladesh.
E-mail: sadeka@bangla.net

Monitoring Tools for Rural Electrification: Prospects and Challenges in Applying Energy-Poverty-Gender Linkages

In Uganda, rural electrification is one of the major energy policy strategies for increasing access to energy services. The Energy for Transformation project is the main vehicle for putting this strategy into action. The current Monitoring & Evaluation system focuses on two poverty focused elements. The challenge now is to bring in the gender focus.

May C.N. Sengendo

Energy policy planning is a key concern within the poverty alleviation strategies of many countries. At the same time, poverty reduction and gender equality are considered as goals as well as outputs that reflect development and change, which in turn fulfil the commitments made by these countries in the framework of international policies and conventions, such as the Beijing platform for action and the Millennium Development Goals.

One of the ways of addressing these commitments and goals within the energy sector is to formulate linkages between energy, poverty and gender. The challenge in the application of such a linkage is the monitoring of not only the achievement of energy policy objectives and the extent to which energy interventions are genderised, but also of the achievements resulting from the inputs to rural electrification projects. Energy policymakers, programme planners and implementers are therefore continuously demanding tools that can be used to apply such linkages in energy policy planning, implementation and monitoring.

This article attempts to provide some examples on how to integrate energy-poverty-gender linkages in monitoring tools for rural electrification projects. Examples are drawn from one of the subprojects of the Energy for Rural Transformation (ERT) project in Uganda, namely the Business Development Scheme/Energy for Rural Transformation (BUDS/ERT) project, which is undertaken by the Private Sector Foundation, Uganda.

The Energy-Poverty-Gender Linkage in Monitoring Rural Electrification Achievements

In Uganda, rural electrification is one of the major energy policy strategies through which the Government plans to increase access to energy services and technologies from the 1% level for rural electrification that existed in the year 2000. In the past, Uganda's rural electrification programmes were conducted through the government utility, which had a monopoly on power supply. Currently, the ERT project is the main vehicle through which Uganda aims to address issues of rural electrification. Under reforms led by the World Bank, the conventional model of government-led rural electrification has been replaced by one led by a private sector, commercially-oriented programme. In this model, subsidies are expected to take account of affordability and equity. Investment decisions are made on a commercial basis and the provision of output-based aid is balanced against the need to facilitate financial closure of private sector projects. The ERT Project Secretariat works with the Ministry of Finance, Planning and Economic Development (MOFPED), and has designed a monitoring and evaluation (M&E) programme. This M&E programme aims at measuring the impact of the ERT project interventions in terms of rural transformation by focusing on two poverty-focused elements: improvement in quality of life and increases in income. Gender is

another element that has to be incorporated into this M&E programme for the ERT project to conform to Uganda's energy policy as well as the national gender policy. However, gender guidelines for the M&E programme are not yet in place.

Some of the guiding questions that can be asked include the following: *what inputs were invested in the rural electrification project towards gender and poverty-related activities; what costs have been incurred in gender and poverty-related activities, who has benefited from the costs incurred in order to get to a certain result; whose needs have been catered for; who has lost out from the project; who has been able to participate; what change have women been able to achieve in decision-making; who has accessed the energy services and technologies; what choices have the rural electrification project provided for women and men, and whose choices have been catered for; what positive and negative effects have energy services and technologies had on the norms and values of society and organisations in relation to the roles and needs of women and men; and what benefits have they achieved and who has benefited?* Such questions can be incorporated in the monitoring plan for the rural electrification project and the responses analysed.

The BUDS/ERT Project

The BUDS/ERT project has been operating for one year (as of 2004) as a financing mechanism using funds from the World Bank. It provides the following services: cost sharing grants to clients; a sales-based performance grant scheme (solar grant scheme); and rural business development support to help increase energy consumption. The clients are mainly energy service users plus enterprise developers, NGOs and energy technicians in the private sector. As of now, it has supported both men and women, from small-scale private sector companies and NGOs, to obtain funding to undertake energy service delivery activities and energy-related technology transfer including solar and micro-hydro projects. The solar companies that were funded this year (2004) have so far distributed 500 solar-panel systems of (60,000 watts in total) and the funding to enterprises and NGOs involved with micro-hydro has enabled the installation of 40 MW of micro-hydro systems. Two companies have been supported in providing information technology.

Having a focus on energy-poverty-gender linkages when monitoring rural electrification projects requires an assessment to be made of the planning phase of the project and asking the question: were gender and poverty concerns a priority focus in the project? In this case, the project did not ensure that strategies to address differences in the roles, needs and access to resources of women and men were taken into consideration during the planning. Now, these are key issues that need to be incorporated. Fortunately, certain aspects, which were taken care of to ensure the effectiveness of the project, have helped it to realise the importance of gender and poverty concerns within this energy intervention.

Experiences at the project level with BUDS/ERT, in terms of applying

the energy-poverty-gender linkages in developing a monitoring tool, are discussed below. Some guidance is also given on extending the monitoring component to the household level (where the project has yet to make an assessment).

At the programme level, **participation** is a key monitoring indicator that can be dealt with by identifying the categories of women and men who participate in energy service provision. At the household level, this could be the extent to which women and men have been involved as beneficiaries. Here, the energy service is provided by the project staff, and the beneficiaries are BUDS/ERT's clients. Fifteen clients obtained funding in 2004, but it is not clear how many of these were women or men. However, the programme staff have noted that more men than women come forward for the services, but the actual numbers are not known. Some of these funded enterprises are certainly owned or managed by women. However, it is difficult for the programme to get such details having failed to plan for obtaining such gender-disaggregated data on clients who seek the services of this programme.

The differences in the needs and the involvement in decision-making between the genders also require monitoring in such a project. The programme officers were not sure how they could give attention to the needs of female and male clients when the service provision is consumer-driven. Each applicant is assessed according to given criteria and if she/he qualifies, then funds are provided. What is lacking is consideration of the different needs of women and men as they seek to access these services. These needs may be related to their different tasks, who makes decisions, and who has the authority to ensure that funds are appropriately utilised. The programme staff felt that taking this additional step, and including the differences in needs and decision-making issues between female and male clients, would mean more work for them, more training in gender planning/analysis and therefore more operational costs. With appropriate planning, however, such gender and poverty specific components could be taken into consideration within the guidance given to clients during the funding assessment and the implementation of those energy projects that are funded.

Access to resources can be monitored by assessing the number of women and men who have so far qualified for funding and, as such, have been able to access the services provided by BUD/ERT. This should be for the various components of the programme: cost sharing grants to clients; the sales-based performance grant scheme (solar grant scheme), and rural business development support to help increase energy consumption. It would be useful to find out which of these have been accessed by female more than male clients and vice-versa, and why. In this project, the programme staff have considered access to resources through beneficiary assessment: who has access to the resources that are obtained from the funding of the transfer of energy technology and provision of energy services? They realised that although more men than women get to the programme office and therefore have access to the funding (as project leaders or company owners), at the beneficiary level it is women and children who usually benefit from projects for which grants are reimbursed rather than men. Good examples are the provision of better services in hospitals as a result of improved lighting from the installation of a solar panel, and a reduced distance to water sources due to the introduction of energy technologies for pumping water. To consider women not just as beneficiaries but also as active decision-makers who can control resources will require adjustments in the BUD/ERT planning process, as well as in the clients' projects. There is also a need to address the reasons that stop women seeking access to funding. Furthermore, it is important to identify societal norms and values concerning the position of women, and to change the thinking that women's access to energy technologies and services should be as users and not in any other role.

Project costs incurred in BUDS / ERT should be monitored for the extent to which women and men have opportunities to access the funding available. One would think that the process of assessing an

application for funding would be a key to promoting or hindering women's or men's access to the funds. This, however, is not the case in this programme. The programme staff indicated that any applicant who fulfils all the requirements will go through the process faster than those who leave gaps in the application information. No applications are rejected; and sometimes applicants are given technical support by the staff to improve their applications. Before the commitment of funds, the project plans and implementation procedures are assessed to ensure the effective implementation of any projects funded. Accessibility to funding is facilitated through the guidance given to all clients irrespective of gender.

Another concern is to examine the strategies in rural electrification programmes that **contribute to poverty reduction and the empowerment of women**. The rural electrification strategy in Uganda is basically aimed at improving rural livelihoods through improved energy options/technology, and thereby reducing poverty. As such, the BUDS/ERT programme has tried to ensure that funding grants mostly target energy projects in those rural areas that have high levels of poverty, as indicated by the participatory poverty assessment reports, and that the project proposals include strategies to address poverty. However, little effort has been made to include strategies for the empowerment of women.

Conclusion

The integration of poverty and gender in the monitoring of energy policies and projects requires one to compare and assess the baseline situation with that expected as a result of the introduction of the proposed policy or project. This article has provided some suggestions for additions to the existing monitoring indicators that would reflect the energy, poverty and gender linkages, taking as an example the BUDS/ERT project. In focusing on poverty and gender there is a need to assess the differences that exist in the roles, needs and rights of women and men, as well as the ways these differences can aggravate poverty in a specific household or community.

According to the BUDS/ERT staff, future energy for rural transformation projects need to include more local mobilisation in order to improve private investment, take demand-driven financing more seriously and come up with more innovative commercial investment mechanisms.

If these issues are dealt with in the early stages of project implementation, they can help further planning and monitoring to promote poverty reduction and gender equality. ■



◆ May Sengendo is Chairperson of the East African Energy Technology Development Network-Regional Level, and Lecturer in the Department of Women and Gender Studies, Makerere University, Uganda. She has undertaken short- and long-term gender assignments in the fields of social policy, energy policy and programming, trade policy analysis, and institutional assessment. May has also been

responsible for conducting capacity building and training programmes in the fields of gender analysis and mainstreaming for the government, NGOs and project staff across Uganda and in other African countries. She is currently pursuing a PhD in Gender and Transformation at the Africa Gender Institute, Cape Town University.

◆ EAETDN-U, P.O.Box 5593, Kampala, Uganda;
Tel: +256.(0)41.531520; Fax: +256.(0)41.258833,
E-mail: sengendo@infocom.co.ug

The Bulletin Board

AWARDS

Ashden Awards 2005

The Ashden awards for Sustainable Energy reward outstanding and innovative renewable energy projects. Four of the five awards given annually are for projects in developing countries in the following categories: food, light, education, health, and enterprise. Inspiring stories of the Ashden Overseas Awards 2004 winners can be read at:

<http://www.ashdenawards.org/finalist04.html>
The application process for the Ashden Overseas Awards 2005 has begun. It is a two-stage process. Interested applicants have to submit a preliminary concept note, which will be screened by the judges. Selected applicants will be then invited to submit a detailed application. Application forms, eligibility criteria, timetables and other information are available at:

http://www.ashdenawards.org/apply_int.html
or contact: info@ashdenawards.org

EVENTS

Women's Worlds 2005 – 9th International Interdisciplinary Congress on Women, 19-24 June 2005, Seoul, Korea

The theme of this congress is "Embracing the Earth: East-West/North-South". Under this theme, the congress hopes to provoke discussion on how women's lives are interwoven, as well as kept separate, by the increasing economic disparity between the North and the South, and the contesting values of the East and the West. The twenty sub-themes include: Gender Identity; Environment and Agriculture; Family and Everyday Lives; Gender, Science and Technology; Women's Studies; and Economy, Work and Welfare. The congress organisers welcome proposals for papers from everyone engaged in gender issues in fields ranging from community development to performing arts. Online submission forms are available at: www.wv05.org

The organising committee can be contacted at: Asian Center for Women's Studies, Ewha Women's University, #11-1, Daehyun-dong, Seodaemun-ku, Seoul, Korea; or by e-mail at: ww05@ewha.ac.kr

The deadline for submissions is December 31, 2004.

4th International Conference for Renewable Energy, Energy Saving and Energy Education, 25 – 28 May 2005, Varadero, Cuba

As a follow up to the successful 3rd conference, the organisers are now calling for abstracts for the 4th International

Conference on Renewable Energy, Energy Saving and Energy Education. Although the official language of the conference is Spanish, abstracts will also be accepted in English. This conference offers a forum for engineers, researchers, manufacturers and practitioners in all fields of energy to discuss developments in the effective use of all forms of energy and energy education. The conference themes include Renewable Energy; Energy Efficiency and Energy Management; Energy Saving in Transportation; Energy, Science, Technology and Society; and Energy Education. The deadline for applications and submission of one-page drafts is 15 January 2005. More information can be obtained from the conference secretariat at: 2005@ceter.cujae.edu.cu or cier2005@yahoo.com

DONORS

Triodos Renewable Energy for Development Fund

The Triodos Renewable Energy for Development Fund commenced operating as a financier of renewable energy services in developing countries on 1 April 2004. The fund supports the introduction of renewable energy to off-grid rural areas and under-served populations, and will make investments (loans, guarantees, and limited 'seed capital') in the range of € 100,000 - 250,000 to private sector enterprises, financial institutions, and organisations that facilitate such developments. More information at: www.triodos.com

Development Marketplace (DM) 2005

The World Bank's DM programme is calling for proposals for 2005 under the theme: Innovations for livelihoods in a sustainable environment. The World Bank expects to award at least US\$ 3m to winning projects. Proposals will be accepted until the 21 of January 2005 and finalists will be announced by March 30 2005. The call is open to development innovators, civil society organisations, social entrepreneurs, private foundations, academia, private sector corporations etc. For more information and competition guidelines, visit the DM website www.developmentmarketplace.org or contact the DM team at dminfo@worldbank.org Information on the nine Country Development Marketplaces covering 14 countries is also available on the same web site.

Renewable Energy and Energy Efficiency Partnership (REEEP) 2005

Approximately 15 Million Euros is to be made available for funding renewable energy projects internationally. Project proposals are being sought for this third round of funding for the period 1 April 2005 to 31 March 2006. For further details and to download bid documents, visit:

<http://www.reeep.org/groups/callforbids> For questions and comments contact Christine Sprinzl at Christine.Sprinzl@reeep.org

NEW ON ENERGIA'S WEBSITE

Recently ENERGIA has introduced some new features on its website to enable visitors to find the information they are looking for more efficiently. The Annotated Bibliographies and the Publications on Gender and Sustainable Energy are now searchable.

To search for publications go to: <http://www.energia.org/pubs/index.asp> and to find entries in the bibliography go to: <http://www.energia.org/resources/bibliography.html>

CALLS FOR ARTICLES

Sustainable Energy News – the newsletter of INFORSE (International Network for Sustainable Energy) plans to feature gender and sustainable energy in a forthcoming issue. Please send your inputs to Judit Szoleczky at: ove@inforse.org

LEISA – the quarterly magazine of ILEIA (Information Centre for Low External Input and Sustainable Agriculture) is calling for articles for a thematic issue on "Energy on the Farm" scheduled for March 2005.

Details are available at: [http://www.leisa.info/index.php?url=show-blob-html.tpl&p\(o_id\)=8754&p\(a_id\)=237&p\(a_seq\)=0&](http://www.leisa.info/index.php?url=show-blob-html.tpl&p(o_id)=8754&p(a_id)=237&p(a_seq)=0&)

ENERGIANET

ENERGIANet is ENERGIA's electronic bulletin that is issued four times a year. It contains information on the network's activities, publications, internet resources, donors, etc. To subscribe, please send an email to Chessa Wettasinha at c.wettasinha@etcnl.nl

Next Issue

This issue of ENERGIA News has been quite a challenge. Although rural electrification has been high on the rural development agenda, the gender implications and impacts are yet to be given due recognition. Yet, as illustrated in this issue, viewing rural electrification through a gendered lens is important for ensuring that the needs of both women and men are met and that everyone benefits.

At present, we are sourcing articles for the next issue on gender and energy in the water sector. Although gender has become a central issue in the water sector at large, the role of energy is still not receiving its deserved attention. In this forthcoming issue, we need to examine how energy in the water sector affects health, economic opportunities, security, and empowerment for both men and women within the framework of the overarching goal of poverty reduction and sustainable development. Please contact us if you have any interesting experiences to share.

ENERGIA would very much welcome your contributions on gender and sustainable energy topics for future issues of ENERGIA News. The length of articles or case studies should be around 850 words for a one-page article or 1500 words for a two-page contribution including a photograph. Please remember to send photographs and/or other illustrations to accompany your feature together with captions and credits. Guidelines for writing articles can be obtained from the ENERGIA Secretariat or downloaded from ENERGIA's website.

ENERGIA reserves the right to select only those articles that are appropriate for publication in ENERGIA News. If an article is worthy of publication but not suitable for a particular themed issue it can be published on the ENERGIA website. ENERGIA also reserves the right to edit, shorten, and rewrite articles. In principle, providing the publishing deadline allows it, approval will be sought from the authors for any substantial revisions made to an original article prior to publication.

Using material from ENERGIA News

Any information from ENERGIA News may be copied or reprinted, subject to the condition that it is properly credited and cited.

ENERGIA is an international network on Gender and Sustainable Energy, founded in 1995 by a group of women involved in gender and energy work in developing countries. ENERGIA's objective is to "engender" energy and "empower" rural and urban poor women, through information exchange, capacity building, research, advocacy, and action aimed at strengthening their sustainable energy development.

ENERGIA's approach is to seek to identify needed activities and actions through its membership, and then to encourage, and if possible assist, members and their institutions to undertake decentralised initiatives. ENERGIA News is the principle vehicle for this approach. The focus is on practice, with a conscious effort to interpret and learn from this practice.

Subscribing to ENERGIA News is free of charge but we do encourage our subscribers to contribute to the newsletter by sending in their own articles, letters, publications, reports, notes, resources, announcements, photographs, news, and events. To become a subscriber to ENERGIA News, or if you have any queries, please contact:

ENERGIA Secretariat
c/o ETC Energy
P.O. Box 64, 3830 AB Leusden
The Netherlands
Tel: +31.(0)33.432 6044
Fax: +31.(0)33.494 0791
E-mail: energia@etcnl.nl
Website at: www.energia.org

Editorial Team for this Issue

Guest Editors:

Mitali Sen
Research Associate
Department of Sociology, University of Maryland
College Park MD 20742, USA
Tel: +1 (0)301.405 6413; Fax: +1 (0)301.314 6892
E-mail: msen@socy.umd.edu

Douglas Barnes
Senior Energy Specialist, ESMAP
Energy and Water Department
The World Bank Group
1818 H Street, NW, MSN F4K-410, Washington, DC 20433, USA
Tel: +1 (0)202.473 1412; Fax: +1 (0)202. 522 3018
E-mail: dbarnes@worldbank.org

Consulting Editor:

Joy Clancy
Technology and Development Group
University of Twente, KPMG Building
P.O.Box 217, 7500 AE Enschede, The Netherlands
Tel: +31.(0)53.489 3537 / 3545 ; Fax: +31.(0)53.489 3087
E-mail: J.S.Clancy@tdg.utwente.nl

Coordinating Editor:

Chesha Wettasinha
ENERGIA Secretariat
P.O. Box 64, 3830 AB Leusden, The Netherlands
Tel: +31.(0)33.432 6044 / 0000; Fax: +31.(0)33.494 0791
E-mail: c.wettasinha@etcnl.nl

English Language Editor:

Giles Stacey
ENGLISHWORKS
Wim Sonneveldstraat 50
7558 LW Hengelo
The Netherlands
Tel: +31.(0)74.278 3115; Fax: +31.(0)74.278 3149
E-mail: stacey@dds.nl

www.energia.org

ENERGIA NEWS

Design

Kon. BDU Grafisch Bedrijf bv

English Editing by
Englishworks, Hengelo

Printed on environmentally
friendly paper by
Kon. BDU Grafisch Bedrijf bv

Sponsors

ENERGIA News is sponsored by DGIS
(The Netherlands) and Sida (Sweden)