WOMEN AND SUSTAINABLE ENERGY

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NEWSLETTER OF THE NETWORK FOR WOMAN AND SUSTAINABLE ENERGY

Contents

Household energy options have broadened to include renewable energy technologies such as this solar cooker being evaluated by an Ethopia woman. (Photo: Courtesy of GTZ)

News from the Editors

Household Energy: New Perspectives, Gender Perspectives?

Household energy was the first energy sector that paid explicit attention to women and their energy needs.

Although the initial focus in the 1970s was on stove technology design, it soon became obvious that women, as the principle cooks in the household, would be the final arbiters of whether improved stoves met their needs; and further, that women themselves possessed a good deal of knowledge about stove design and construction, conserving energy in cooking and fires and kitchen management to reduce energy consumption. At the same time, stoves programmes began to recognize that women were interested not only in saving fuel (and perhaps time or money), but in other improvements such as faster and safer cooking, and the reduction of smoke in the kitchen.

Increasingly, successful household energy programmes, such as those in China and Kenya, began to use field testing, consumer surveys, and the involvement of local artisans to ensure adoption of improved stoves (Barnes et al. 1993). Networks such as the Foundation for Woodstove Development (FWD) and the Household Energy Development Organisations' Network (HEDON) (profiled in this issue of **ENERGIA News**) were

established. Two leading programmes in household energy work, ITDG's stove program and the GTZ Household Energy Programme since 1982 published a newsletter, *Boiling Point* (also profiled in this issue) to promote the exchange of information and links about such "good practices."

Interestingly, gender analysis has never been explicitly included in household energy. It seems to be taken for granted that because the majority of household energy is used for cooking, that women are automatically included, and indeed, household energy projects have often made use of female enumerators and participatory techniques to elicit women's opinions, included women staff, and involved women's organisations. The different roles of women and men, and the implications for benefits and decision-making, have seldom been addressed though. Women have frequently been involved only in improved stoves components of household energy projects, for example, and not in the supply side components of social forestry. And men's roles in household decision making about appliance purchases and food preferences have sometimes been overlooked.

Two articles in this issue of **ENERGIA News** apply gender analysis to some non-biomass areas of household energy. The article by Marlett Wenzel shows how participatory techniques in gender analysis have been applied in a solar cooker programme aimed at South African rural households. Jyoti Parikh and Vijay Lakshmi, in their article, tackle the policy issue, showing how kerosene product pricing policy in India is a gender and health issue for women.

The articles in this issue of **ENERGIA News** illustrate how the definition of household energy has expanded far beyond biomass cooking stove design. On the fuel supply side, fuelwood production and the substitution of modern, non-biomass fuels have received increased attention. (A future issue of **ENERGIA News** will focus on supply-side issues.) Renewable energies such as biogas, solar cookers and photovoltaic lighting, and fossil fuels such as kerosene and gas, have joined biomass stoves as options to provide more choice for consumers in household energy projects, although the tendency is still for most projects to promote only one type of household energy.

The definition of household energy now includes uses ranging from lighting to cottage industry, concerns ranging from health to education, and strategies ranging from kitchen design to micro-credit.

Health has become an increasingly important focus of household energy efforts, with the main emphasis on respiratory and eye illnesses due to smoke in cooking. A variety of other health issues also confront women in producing and using household energy, including the effects of work overload (use of human energy) and load carrying. Burns and kerosene poisoning, especially of children, are concerns too. Human rights issues with health consequences include rapes and beatings when gathering fuel in risky areas, and the persecution of women as witches when fires break out. These public health issues surrounding household energy have received much less attention, and indeed the gender-specificity of health effects generally has largely been overlooked.
Perhaps most significantly, household energy programmes are increasingly paying attention to integration with rural development programmes. Some of the benefits of this approach identified in a recent paper for HEDON by Agnes Klingshirn (look for it under Resources at <http:// www.energia.org>, include:

- economic impacts, on women's time that can increase food security, on men and women's employment opportunities outside of agriculture (building or maintaining energy devices, selling seedlings, etc.) and on saving money on fuelwood;
- environmental impacts, and by reducing the rate of deforestation and securing forest productivity, and contributing to environmental consciousness;
- health impacts, by reducing the acute respiratory infections caused by smoke from cooking, childrens' burns and women's work;
- socio-political impacts, by increasing women's time and control over their lives and thus strengthening their self-initiative and self-confidence, and by encouraging group organisation.

The promotion of cross-sectoral cooperation may be one of the most valuable benefits of household energy programmes, as Klingshirn points out, since this can bring together agricultural extensionists, home economists and nutritionists, foresters, community development workers, basic health specialists, teachers and religious leaders in a common effort to use energy supplies to improve people's lives. ■

Elizabeth Cecelski, on behalf of the *ENERGIA* Editorial Board

Letters to *ENERGIA*

The first issue of ENERGIA News under the Second Phase of *ENERGIA* has been received with great enthusiasm; the many letters, faxes and e-mails that we have received have been very encouraging.

We are also pleased to tell you that the *ENERGIA* subscribers' directory is now on-line. The information in the directory will be stored in our database and will only be used for furthering the aims of the network. Other subscribers to the network will be able to search the database to make contact with you or your organisation.

For access to the directory visit the ENERGIA web site and register with the directory at: <http://www.energia.org>. If for privacy reasons you do not want any part of your address listed in this directory or posted, please let us know.

Hello!

I was really delighted to find a copy of ENERGIA News in my mailbox this weekend! It is great to hear that you are up and running again. Congratulations!! I had been wondering on and off about the ENERGIA programme and thought it would be a shame if the programme were discontinued.

I've been working for KPN since I left TOOLConsult and have now a fixed position with a company, part of a KPN/Qwest joint-venture, specialising in data-communications and transmissions – KPNQwest -. It really has nothing to do with women and sustainable energy, but I enjoy it all the same. Perhaps by the time the company decides to build glass fibre networks in the South, the experience from my ENERGIA period will come of use. I'd be delighted to remain a subscriber to ***ENERGIA News****, and am already looking forward to the next issue.*

Best Regards and wishes,

Linda Smallegange
Email: Linda.Smallegange@kpnqwest.com

Dear Sheila

I read with great interest the initiative on Energy and Development especially with a focus on women.

I am currently the Co-ordinator of an MSc Renewable Energy Programme at the University of Zimbabwe, and commend the efforts already initiated by you. The women in Zimbabwe are predominantly rural and the burden of carrying large bundles of firewood and pails of water on their heads could be alleviated through the provision of adequate lightning for studies and small businesses, besides keeping up to date with current issues through Radio and Television.

We have only had one lady student so far in this programme and another has just registered for the 2000 - 2001 intake. I hope that although so very few so far, this will help in alerting other women to renewable energy technology possibilities and to lobby for its provision. I am not a woman myself but I feel pained at seeing women's health deteriorate because of carrying unbearable loads and not having time to participate actively in the uplifting of our economies, because of lack of energy.

I will be very interested in receiving your newsletter and will ensure this information gets to all interested persons. You are not alone in fighting this battle for the provision of equal opportunities for women through sustainable energy provision.

Thank you,

Mr Z. Chiguvare
Email:
Zivayi.Chiguvare@mechanical.uz.ac.zw

Dear Ms Oparaocha,

My name is Lelly Tatiana. I have spent almost 7 years working in conservation and community development. At present I am working with one of the World Wide Fund for Nature's Indonesian field offices. My responsibility is assisting field officers in facilitating local women groups in the design process of village conservation and development activities (the project itself is not women-centred, but gives access for local women to be involved).

Yesterday I received a copy of ***ENERGIA News*** *(vol.3.1. March 2000). It is the first time I have read this newsletter and I found most of the topics relevant and it could provide significant information for people who are working with women's groups in the field and have to face different cultural constraints.*

Regards,

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Networking Around the World

Regional Workshop on Women and Sustainable Energy in Africa

From the 13th–15th March 2000, *ENERGIA*, in co-operation with the Environmental Liaison Centre International, UNIFEM and Winrock International, conducted a regional workshop on 'Women and Sustainable Energy in Africa' in Nairobi Kenya. The objectives were to share information about the status of women and energy in Africa, to learn about activities in this field, to strengthen networking in the region and to develop an action plan.

The workshop attracted 58 participants from Botswana, Ethiopia, Ghana, Kenya, Lesotho, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe. The participation at the workshop was multi-disciplinary, with representatives from community-based organisations, NGOs, research institutions, universities, advocacy networks and government bodies; demonstrating that there is considerable interest in gender and sustainable energy at different levels within the region. The participants had all been involved in national consultations which were held as a preparatory process leading up to the regional workshop.

One important feature that resounded throughout the workshop process was the participatory and interactive manner in which the programme was developed and executed. Joyce Onyango (National Environment Secretariat, Kenya) and Regina Amadi-Njoku (UNIFEM Regional Director for West Africa) opened the workshop with keynote presentations that stressed the need for greater gender awareness in energy-related development initiatives. Information concerning on-going gender and energy projects, networks and other initiatives were exchanged during a poster session.

The most important output-oriented elements of the workshop were six working groups which discussed the status quo and analysed existing barriers to incorporating gender into energy planning and increasing participation of women in energy planning and projects on the second and third days. The workshop concluded with an action plan for women and energy in Africa and the identification of focal points for Western African, Eastern African and Southern African regional networks.

The essence of the action plan, and the workshop programme and process, will be featured in the forthcoming issue of **ENERGIA News**. The workshop proceedings and reports from the national consultations will be available on the *ENERGIA* web-site at: <http:// www.energia.org>. The next issue of **ENERGIA News** will be devoted to Women and Energy in Africa and will contain a number of articles from workshop participants. ■

◆ For more information, please contact:
The ENERGIA Secretariat

Gender Equity in the Oil and Gas Sector: International Comparisons and Lessons

The booklet *Gender Equity in the Oil and Gas Sector* is an output from the Oil and Gas Sector Programme – Pakistan, a seven-year project (1996-2003) funded by the Canadian International Development Agency and managed by PricewaterhouseCoopers LLP. This booklet is intended to provide information on women's participation in oil and gas sector activities and to assist government and industry leaders in identifying, designing, and implementing strategies that support the increased participation of women in Pakistan's oil and gas sector.

◆ If you wish to obtain a copy of this 12-page booklet, please send your request to:
Christina Jankowski, Canadian Coordinator, Oil and Gas Sector Programme – Pakistan, c/o PricewaterhouseCoopers LLP, Suite 700, 1111 West Hastings Street, Vancouver, BC V6E 3R2, Canada; Email: christina.d.jankowski@ca.pwcglobal.com

Meeting ENERGIA Members

Katja Winkler

Coordinator Central American GENES Network with Fundación Solar

Interviewed by Sheila Oparaocha

Katja, maybe you could first tell us about your background, where you grew up, what sort of education you had?

I was raised in Mexico by my German parents, went to high school in Germany and finally graduated with a degree in Anthropology from the National School of Anthropology and History in Mexico City. My thesis topic discussed traditional indigenous medical practices in a Mayan community at Lake Atitlan in rural Guatemala.

And what kind of work are you involved in at present?

At present, I am working for Fundación Solar, a private non-profit-making organisation in Guatemala, that works with renewable energy and rural electrification in Central America. It was at Fundación Solar that I first came into contact with energy issues. Since joining in May 1999, my responsibilities have focused on internal institutional capacity building, which includes participation in all our energy related projects, but also the coordination of the Central American GENES network which takes up a great deal of my time (an article on the GENES network was featured in **ENERGIA News**: vol. 3.1, pages 6-8).

Has this type of work been a challenge and have there been any setbacks or difficulties for you?

Yes, there have been setbacks and challenges. Usually, professionals from engineering or similar technical backgrounds work in energy institutions. Only in a few cases are these individuals interested in interacting with professionals from a social science background such as anthropology or sociology. Faced with this typical attitude, you can imagine that motivating an ongoing dialogue and the activities that link gender and energy-use, has not been easy. Gender sensitisation among my colleagues is also not a homogeneous process and disparity in levels of understanding and traditional hierarchical structures makes fluid work quite difficult.

In fact this communication gap, lack of comprehension of, and intolerance to which development solutions or strategies should be used, is what I view as the biggest challenge to "humanising" technology use and mainstreaming a gender perspective into energy organisations. Changing attitudes, such as allowing democratic forms of participation, in particular the inclusion of women, is another challenge that will only be overcome by perseverance and dedication to gender issues.

Do you get much opportunity in your work to respond to women and energy problems as they exist in the field?

Not to the extent that I would like to or that I am able to. It is important that I accompany the technical and organisational field staff whenever possible and have an impact in the operation of projects to encourage equity in resource distribution. Although I am aware that the desired outcome takes much longer in field projects, it is not always possible due to the limited human resources that have to be employed in a certain time frame.

Can you mention any people or events that you feel have strongly supported you in working on problems of women and energy?

I have been interested in gender issues since my early 20s. I was raised by a single mother and I became aware early in life how she and other women had to struggle on a day-to-day basis. I became interested in gender theory when several of my female friends and I organised Women's Day activities at our university. Through the activities of a Central American gender and environment network, Red Hacia la Equidad (Network Towards Equity), I have also had the opportunity to get to know many organisations in the environmental sector that are trying to mainstream gender issues. During meetings, I learnt a great deal about gender issues and I was stimulated to learn more about women's problems in the energy sector. This network has also provided me with training tools useful to the Central American reality. All this has helped me to focus on my work and has also been an eye-opener in my personal life.

What do you feel would help you most in the work you are doing?

I think it would be most helpful to have the necessary means – human and economic - and time, to dedicate to gender and energy workshops, research, advocacy, and the application of participatory methodologies in the field. A change in the way decisions are made and resources are controlled would also accomplish a lot in our gender and energy development programmes.

Finally Katja, being a young working woman in an increasingly competitive environment, do you have plans to start a family and do you think this might be a problem in managing your career?

Yes, I would like to have kids in the near future. Although I know that this means a complete life change, I am positive about it and think that it is possible to start a family without having to give up my career completely in the first couple of years. I think it is also a matter of how much my partner is willing to collaborate in the day-to-day duties that come along with a kid, and how much of my time that I, as a woman, am willing to spend in childcare. Personally, I would like to have a girl.

Katja, thank you for taking the time to talk to us. I know that you have been very busy and have a number of important assignments to attend too. We wish you all the best with your work and the GENES network! Keep in touch. ■

◆ If you would like to know more about Katja's work, please contact her at:
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International Programmes: Focus on

HEDON - the Household Energy Development Organisations' Network

The Household Energy Development Organisations' Network (HEDON) is an informal consultative forum dedicated to improving social, economic, and environmental conditions in the South, through the promotion of local, national, regional and international initiatives in the household energy sector.

HEDON achieves its objectives in two ways:
- by encouraging decision-makers and the general public, in developing and developed countries, to appreciate and support household energy programmes,
- by enhancing the knowledge of professionals working in the household energy sector.

HEDON was established in 1992 by a group of Northern organisations involved in various aspects of household energy that recognised that by bringing together all the key players in household energy they could create a powerful tool for change. There are around 15 active core members from a range of institutions: NGOs (e.g. Intermediate Technology Development Group), private companies (e.g. Biomass Technology Group, The Netherlands), International Agencies (e.g. the World Health Organisation), donors (e.g. GTZ Household Energy Programme) and Universities (e.g. Technology and Development Group, University of Twente, the Netherlands and University of Lund, Sweden). *ENERGIA* is also a member and plays an important role in bringing gender into household energy and the work of HEDON.

HEDON aims to:
- Strengthen the work done in the field of household energy by providing links between various members in order to develop collective action
- Provide a resource of key material for members
- Act as a forum for discussion
- Provide information on training, projects, and conferences
- Act as a focal point for individuals and organisations searching for expertise in household energy

What is household energy?

Household energy is a concept that can be defined in several ways. To some, it encompasses all those ways in which energy is used on a small scale within a family group, and includes physical exertion as well as fuel-generated energy. To others, the energy in question must be generated by some outside means, such as burning biomass or from a solar panel. However, there are a number of ways in which household energy is unique:
- It is diverse in nature, and in rural areas still relies on traditional biomass sources
- The amount of energy used per household is small but the total at the national level can be significant.

The very nature of household energy makes the impacts difficult to measure, both in physical terms and in socio-economic terms, resulting in many issues being overlooked. This has particular implications for women because household energy is usually, though not exclusively, associated with women's work rather than men's. Given that a major part of rural women's lives revolve around the household, addressing household energy issues can have significant impacts on women's lives. In many households, men, rather than women, make decisions about major purchases, which is an important consideration when targeting energy interventions that require sizeable (relative to household income) purchases. It is also important to realise that household energy is about more than technical issues – there are social, economic and environmental issues as well. A strong feature of HEDON is that it brings practitioners from different backgrounds together to address household energy issues in a multi-disciplinary manner.

How HEDON works

Initially, in the days before international communications became electronic, the network was confined to Northern organisations, that met annually to exchange information and to discuss a particular theme in depth. Topics have included: habitat, indoor air pollution, Agenda 21, urban energy, and the integration of household energy with other sectors. As a result of informal contacts at these meetings useful collaborations have evolved between different parties. For example, researchers from Liverpool University have been working on a project for the World Health Organisation (WHO) looking at the health effects of indoor air pollution from biomass combustion. This work has important implications for women's health since it is women who are exposed to high levels of pollutants during their daily cooking activities. Over the last two years, HEDON has been in the process of change. It is now a network in the full sense of the word; it has an electronic network that those working in household energy from all around the world can, and do, join. At present 90 people are part of the electronic network. Electronic communication enables a fast exchange of ideas, circulation of papers for comment, and keeps people informed about conferences and meetings.

HEDON members are currently exploring alternative working models such as a more structured network, or perhaps a formal consortium for collective action. There are plans to establish a secretariat. The activities of HEDON and its members are reported on the HEDON website, and in the ITDG journal *'Boiling Point'*. The latter enables those who do not have access to computers to keep in touch with household energy issues. ■

◆ More about HEDON can be found on the web site:
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Elizabeth Bates

Boiling Point: A Journal Dealing with Burning Issues on Household Energy

Back in 1982, the stoves team of ITDG (Intermediate Technology Development Group) became aware of a missing element in their work - a means of disseminating household energy information.

Thus, the first *Boiling Point* was published, steered until 1997 by Ian Grant, during which time the journal became recognised as a voice for those working in the household energy field. Nearly twenty years later, the journal is still going strong (since 1990, published jointly with GTZ), and it is interesting to examine the elements that have made it so successful.

What *Boiling Point* aims to achieve

The mission statement for *Boiling Point* states that it is a 'technical journal for those working with household energy and stoves. It deals with technical, social, financial and environmental issues and aims to improve the quality of life for poor communities living in the developing world.'
This rather dry statement hides a whole world of linkages, interactions, enthusiasm, and enjoyment for me in producing this unique journal. The whole basis of the journal is to link everyone working within the household energy field and to give each one a voice. Thus our readers are also our authors; all actively involved with the real issues that cover the whole spectrum of household energy.

Some interesting statistics

Our current readership stands at around 1500 (located in 118 countries) and is increasing rapidly. The majority of copies are sent to small NGOs and educational establishments in the South. A recent impact study of 100 readers indicated that between nine and thirteen people read each copy. However, as this was a sample of readers chosen because they had responded in the past, we can assume that the average is probably somewhat less. Nevertheless, if five people read each copy on average, that represents a substantial readership. We also found that most people save all their copies.

Woman beneficiary mixing water and cow-dung to be fed into the bio-gas digester in Himachal Pradesh, India (Photo: AIWC, India).

The articles in *Boiling Point*

As an editor, there must be some 'favourites' that arrive on my desk. They fall into fairly distinct categories:
• Articles that expand my own knowledge horizon - sometimes a whole new set of problems, concepts, needs, arrive in a neatly packaged article; it still happens quite often!
• Items written by people whose first language is clearly not English. When people make an enormous effort to describe work they are doing, it is good to be able to provide an enabling environment in which their information can be disseminated.
• Classic, beautifully written, well-illustrated, carefully referenced text; you know instinctively that there will be lots of requests for extra copies…BP40 was full of such articles and had to be reprinted.
One surprising aspect, considering that this is a journal on household energy, is the small number of articles that I receive from women authors. It would be good to achieve a better balance, but this can only be achieved if appropriate articles arrive on my desk. Perhaps it is a reflection of the gender balance of those working in household energy - it would be interesting to know.

The way forward

The Household Energy Development Organisations' Network (HEDON) and *Boiling Point* share many of the same objectives as can be seen from the HEDON article in this issue. At this year's HEDON meeting, it was decided to formalise the link to *Boiling Point*, which in future will report on HEDON activities, especially beneficial for those who do not have access to the electronic web. It is hoped that this linkage will become stronger and allow a more integrated pathway to household energy development. ■

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◆ The author Elizabeth Bates, the co-ordinator and editor of Boiling Point, works at ITDG.
She holds a Degree in Mechanical Engineering and a PhD in Materials Science. She is also an enthusiastic member of the HEDON Network. For more information about ***Boiling Point***, please contact: **Elizabeth Bates, ITDG, Schumacher Centre for Technology & Development, Bourton Hall, Bourton-on-Dunsmore, Warwickshire CV23 9QZ; Tel: +44.(0)1788.661100, Fax:+44.(0)1788.661101, E-mail: elizabethb@itdg.org.uk**

Renewable Energy Technology Transfer: Socio-Cultural Impacts

Marlett Wentzel

Macro-scale considerations of renewable energy technology dissemination have traditionally been the focus of technology transfer and acceptability studies.

A gender analysis of the acceptance of a specific renewable energy technology in rural and peri-urban areas in South Africa (Photo: Marlett Wentzel, South Africa)

1. Introduction

Macro-scale considerations include for example financing issues, end-user credit, distribution, maintenance, training, and hardware performance. Increasingly, studies have however recognised the importance of micro-scale issues and socio-economic considerations that influence the acceptability of new technology. Micro issues influence the introduction and acceptance of renewable energy technologies, and one such issue is gender. In an analysis of the influence of gender issues on the acceptance of a specific renewable energy technology (solar cookers), specific attention was paid to women's roles and responsibilities, as well as resources and resource flows at various levels such as the household, the community and the area. The analysis was carried out as part of a longitudinal study focussing on the acceptability of solar cookers, hereafter referred to as the DME/GTZ solar cooker field test.

2. Background

In a joint German/South African pilot programme, the South African Department of Minerals and Energy (DME) and the Gesellschaft fur Technische Zusammenarbeit (GTZ) set out to study the acceptability of seven selected types of solar cookers by a variety of users in three test areas of South Africa. The pilot programme is divided into two phases. Phase 1 was a field test, and phase 2 will comprise a pilot dissemination programme of the most acceptable adopted cookers.
On the basis of a baseline study carried out in four potential areas, 3 test areas were selected. These included a remote rural area (Onseepkans on the Namibian border), a rural area (Pniel near Barkley-west) and a peri-urban one (Huhudi near Vryburg). A total of 100 families were involved, 70 user families (with cookers) and 30 control families without cookers. The test also included 14 institutions, all education centres, mostly pre-school facilities. Seven different cooker types were placed with the user-families in a year long study. The end-user acceptance found during phase 1 was sufficient to warrant large-scale dissemination, and hence the second phase of the project is underway. This entails:

- Technology transfer from Europe to South Africa;
- The production of three of the improved solar cooker types in South Africa;
- Testing various marketing and financing schemes by selling solar cookers in selected areas.

2.1 Brief summary of selected results – Phase I

Usage rates of the cookers have been used as one indicator of end-user acceptance. Before the solar cookers were placed with families, wood collected from the environment and used in an open fire or wood stove was the primary energy source for cooking. Families used wood and wood-fuelled appliances for approximately 50% of all meals. Gas, paraffin and electrical appliances were used to a lesser degree, and in that order. After solar cookers were placed with user-families, the cookers joined wood and wood stoves as the most used appliances, each now being used just over one third of the time. Solar cookers were reported to be used to cook 35% of meals, or they were used at least once on 37% of all days. The remaining third of all cooked meals were prepared using gas, paraffin and electric appliances (again in that order). It should be noted that only one of the study areas is electrified and this will reduce the average number of times an electric appliance is used. Users reported good results for 93% of all solar cooking attempts. Water was also routinely boiled in the solar cookers for washing purposes or the morning cup of tea. Another interesting use of the solar cookers was for ironing. Families placed their cast-iron irons in the stoves to heat, rather than putting them in the open fire which would dirty them.

Households in the three study areas spent between R31 and R66 on energy each month. The variation is largely due to the amount of collected wood that families utilise, families with a very low income often collect wood to reduce expenditure. Despite this strategy, the poorest families in the study were spending up to 26% of their monthly income on fuel. The use of solar cookers represented a considerable saving for these families. On average, across the three study areas, paraffin use dropped by 33%, gas by 57% and wood by 36%. This translates into savings of between R12 and R26 per month, depending on the area. Users indicated that these savings were significant and encouraged the continued use of solar cookers.

3. The Gender Review Component of the Solar Cooker Field Test

3.1 Theoretical contextualisation

3.1.1 Poverty, energy and gender

Energy issues need to be viewed against the broader background of poverty, which often influences and dictates the energy choices of households. Households are dependent on unreliable and unpredictable sources of income and have various needs, of which energy is only one, which have to be met within these constraints. The poorer households in the study areas (with an average income of less than R500 per month) have been found to spend up to 26% of their total household income on satisfying energy needs, while richer households (with an income of R1000 or more) spend a maximum of only 7%. Poor families generally spend proportionally more on satisfying their energy needs, mainly because of the types of fuels that are used and their patterns of income and expenditure. Low and unreliable incomes perpetuate a dependence on energy sources that are either free or which can be purchased in small quantities on a daily basis. Household energy consumption is further determined by a number of macro and micro determinants. One of the primary macro determinants is geographical location, while important micro determinants include household size, structure and insulation, as well as household income and expenditure.

Energy sources are adopted by end-users for cognate economic and practical reasons - notably short term price advantages and convenience as well as more complex issues surrounding gender and generational relationships, ideologies, and internal conflicts within domestic groups (Bank:1996). Hooper-Box et al. (1997) also state that gender relationships impact on decision-making regarding fuel and appliance use, acquisition and expenditure. Power relationships affect decision-making around fuel and appliances whether it is in the household, the homestead or the social networks. Men and women spend money on fuel and appliances differently.

It can be argued that the greatest energy burden is borne by the poorest sections of a community, which in most cases are made up of women. The cost of energy, in terms of money, physical effort, time, and the negative health effects of various fuels (including exposure to indoor air pollution) place a heavy burden on poor women. One important finding of the study highlighted the increasing involvement of men and children in fuelwood collection for household consumption. Negative impacts are therefore not only limited to women but also influence men and children.

White et al. (1996) found that groups of close woman friends often shared the cooking of meals as a way of saving money and fuel. This was also noted during the gender review where solar cookers were found to positively contribute to food groups through fuel savings, which enabled members to buy and cook more food for the benefit of the group. Energy sources and appliances are also increasingly recognised as maintaining and enhancing social networks and relationships. As Bank (1996) points out, energy-use strategies are not about the relationships between individuals and resources, but about the relationships concerning resources between people.

3.1.2 Household economy and organisation

The use of solar cookers fits with the multiple fuel use pattern of many households: people are used to switching between fuels and appliances, and the availability of solar cookers represents a broadening of choice to women in meeting their cooking requirements. By providing an additional energy choice, savings were achieved that benefited women, children and social networks. The impact of solar cookers on the household economy is dependent on how the household economy is organised, and the extent to which the household is linked to a wider economic network. This field study reveals that in Onseepkans the impacts of solar cooking will, for the most part, remain at the household and community level.

In all three communities the household economy and the choices that household members make are inextricably linked to community political and management dynamics, social networks and the wider (sub-regional and regional) context. This is a similar observation to Bank (1996) who states that energy research is about the relationships between people, concerning resources, rather than between individuals and resources. Individual actions, such as choosing energy, are situated in complex systems of power relationships and socio-cultural meanings. The research undertaken during the field study highlights six spheres of resources that are significant for the user families. They are resources within the household, between households, within the community (natural resources and service providers), political resources, resources from the productive sphere, and resources that exist in "centres" such as Kimberley and Upington (larger towns close the trial areas).

4. Gender Analysis Findings

4.1 Impact of solar cookers

Onseepkans

The typical household economy is based on subsistence activities, wage labour from migrant workers, the management of resources in the reproductive sphere, and the exploitation of natural resources such as fish and wood. The major part of the 24-hour day is consumed by reproductive activities undertaken by women and children. Productive activities within Onseepkans consist of the rearing of goats and cows and small-scale household agriculture. Household economies in Onseepkans depend on social networks, and much effort is put into the maintenance of the network. The severe lack of economic

Resource spheres in Onseepkans	Household access to resource spheres	Impacts of solar cookers
Resources within the household	Food, labour, children, pensions. Controlled by women and children.	Monetary and time saving. Increased time for strengthening social networks, household duties.
Resources that flow between households	Food, labour, social networks and support, social and cultural identity.	Social networks strengthened (food, money). Patronage using the solar cookers. Enhancing social identity through food sharing.
Resources within the community such as natural resources and service providers	Mission, clinic, post office, school, crèche, Orange River, reeds, wood.	Opportunities to give money to schools and church. More time for fishing. Reduced wood collecting.
Political resources and community management	Women's church groups, men's groups, ANC, dance committee.	Not much impact. The solar cooker trial strengthened community management issues.
Resources from the productive sphere	Household agriculture, small business, seasonal labour, migration.	Increase in time for subsistence agriculture. No impact on migration.
Resources that exist in "centres" such as Kimberley or Upington	Pofadder, Keimoes, Kakamas, Upington.	Marginal impact. Households have insufficient funds to access centres.

opportunities in Onseepkans and the shortage of land for farming will perpetuate the on-going marginality of the community. The impact of solar cookers in Onseepkans is tabulated on page 8.

Pniel

The typical household economy in Pniel is similar to that in Onseepkans although there is a slightly increased opportunity to seek wage labour without becoming a migrant since there are some opportunities to work in Barkley-West and Kimberly. Strong household networks exist providing social "safety nets" to individual families. In addition families tend to live in clusters within the community ensuring reciprocal support in the form of labour, food and equipment. The lack of access to arable land for farming and the lack of any foreseeable development in Pniel will ensure that Pniel remains a marginal community. Any benefits from solar cooking will remain within the household and community rather than enabling the residents to access resources beyond Pniel. The impact of solar cookers in Pniel is tabulated below.

Huhudi

Huhudi households are less dependent on social networks that include other households. The major components of the household economy are commuting, welfare schemes, public works programmes, migration and informal businesses. Commuting is mainly to Vryburg. The impacts of solar cookers is tabulated below.

4.2 Gender roles, household organisation and impact on fuel use.

Women are primarily responsible for coping with the consequences of energy poverty. Solar cookers have an influence on aspects of the social environment, however the impacts will not improve women's positions in the community.

• Women's access and control of resources
In all three communities, women have the greatest access to resources within the household and the community. Resources are seen as including financial ones, time, social networks, community politics, community management and productive activities.

Control over household finances varies between families, and is to a large extent dependent on household formations. Households with an absent male head, or with a female head, tend to offer greater control over the household resources to women. In Onseepkans and Pniel, where pensions and migrant remittances form the basis of many household incomes, the opportunities for female control of finances is greater than

Resource spheres in Pniel	Household access to resource spheres	Impact of solar cookers
Resources within the household	Food, labour, children, pensions. Controlled by women and children.	Monetary and time saving. Increase in time for strengthening social networks, household duties.
Resources that flow between households	Reciprocal relationships – money, labour, food, equipment.	Social networks strengthened (food, money). Patronage using the solar cookers. Enhancing social identity through food sharing.
Resources within the community such as natural resources and service providers	Shop, wood, Orange River, diamonds, sand, church, school, crèche.	Reduction in wood collection. Savings lead to increased contributions to church, women's groups and savings clubs.
Political resources and community management	ANC Youth League, Farm Committee, Water Committee.	Increase in time available for such activities. Marginal impact on this sphere.
Resources from the productive sphere	Migrant labour, seasonal farming, subsistence agriculture, sand, diamonds.	Potential for increased time enabling greater access to Barkley West and Kimberly.
Resources that exist in "centres" such as Kimberley or Upington	Barkley West – shops, banks, post office, communication, government offices. Kimberly – major centre.	Very accessible – taxis. Savings enable increased spending on transport to centres, although this is marginal.

Resource spheres in Huhudi	Household access to resource spheres	Impact of solar cookers
Resources within the household	Food, labour, skills, equipment (controlled by women, with the assistance of children)	Time and money saving New opportunities (productive)
Resources that flow between households	Food, money, material, labour, counselling.	Strengthening of social networks as people can still borrow/lend food amongst themselves) Weakening of social networks, as material borrowing may decline (e.g. no need to borrow paraffin from neighbours).
Resources within the community such as natural resources and service providers	Schools, sport and recreational facilities, churches, clinic, shops, gymnasium, wood	Resources, in which reproductive elements dominate, are likely to affected by solar cookers. These include resources such as schools (pre-schools and primary schools) and the clinic. These resources could serve as an important avenue for the marketing of solar cookers.
Political resources and community management	Civic, ANC, burial club, savings clubs, cultural organisations. Women are actively taking part in these resources, mainly on reproductive activities. Savings clubs are non-profit making organisations	Well organised community – information flow is adequate
Resources from the productive sphere	Commuting, household business, migration.	Commuting could negatively impact on the use of solar cookers as it removes labour from homes. Business people who prepare and sell food could save money to buy fuel. With migration, it is usually wives and children who remain behind. Potential for increased migration is marginal.
Resources that exist in "centres" such as Kimberley or Upington	Banks, shops, telecommunication, education (computer college)	The purchasing power in Vryburg may be affected, especially concerning fuels.

in Huhudi. In Huhudi men have a greater influence in household management and the control of finances since the men tend to be resident.

Household social networks are a resource which is controlled by women. In all three communities the women manage relationships between the household, other households and other communities. Men do have access to social networks but their networks seem to have less impact on the daily survival strategies of the household.

• Women's productive and reproductive roles
Women's reproductive roles are managing food, children, fuel acquisition, household cleaning and social relationships. The solar cooker, both in terms of the fuel and the appliance, impacts on these activities. Women commented that they have more time for reproductive activities, especially social networks.

Women have control over household organisation and labour. The use of solar cookers has necessitated a shift in cooking times and a re-organisation of household labour. Collecting wood in Onseepkans and Pniel has mainly been the responsibility of men and children. This dynamic has changed over recent years, especially in Pniel, as collection has become more difficult. Women and children tend to collect small pieces of dead wood whilst men - often in groups - collect large branches (often having to climb trees to cut them off). The time needed for collection, for both men and women, is around two to three hours per trip. As a result of solar cooker use, men and women have had to collect less wood, and the time saved is taken up by socialising with friends and family. Women have little control over men's time. The extra time available to children is also taken up by socialising and household duties, although women have more control over their time and can thus get some assistance with household chores.

• Women in community management and politics
In Pniel and Onseepkans women have influence over certain institutions that directly affect the household such as the church, the clinic, schools, women's groups. Women, however, have very little access to community politics in all three communities. In Onseepkans the councillor is male and access to the District Council is through men. The Pniel community has little influence over politics. The main player in Pniel, called the "mayor", is a man. Some women, especially the younger ones, are active in the ANC youth league, however most activity by women takes place in the Farm Committee, an institution established by the Berlin Mission. Tension exists between the ANC youth league and the Farm Committee, due to both ideological and generational dynamics.

The past neglect of Huhudi has facilitated the development of effective local organisations, which enjoy local support. Members of the community rely on local organisations to obtain development assets. As a result, the levels of involvement by local people (adults and youths) in community politics are high. The chair of the Vryburg TLC executive committee is a woman and one of the female monitors (who sadly died returning from a youth meeting with the premier) was the chairperson of the Huhudi ANC Youth League.

5 Conclusions

Solar cookers were found to impact positively in a number of areas:

- Impacts on time: An increased availability of time allowed greater inputs into household activities, social networks and subsistence agriculture. No firm evidence of increased activity in the cash generating productive sphere could be found.
- Impacts on the household economy: More available cash enabled payments to service providers and an increase in food purchases. This leads to an improved diet due to the higher quality food that could be purchased. The impact on household organisation is mainly due to the changes in cooking times and the reduction in wood collection by men and children.
- Impacts on social networks: Social networks were enhanced in Onseepkans and Pniel due to the increased time available for social activities, and more directly through increased food sharing by social groups. In Huhudi a breakdown of reciprocal relationships surrounding fuel could occur because of the use of solar cookers.
- Impacts on community organisation and politics: Very few impacts were noted. In some cases, increased time allowed for greater participation. Monetary savings due to the use of solar cookers permitted greater contributions to church groups and savings clubs.

Solar cookers have had particular impacts on women and their access to, and control of, resources:

- Monetary savings (due to reduced gas, paraffin and wood purchases) have enabled women to allocate finances to their spheres of influence, namely the family (clothing, food), service providers (education, health), and the church (building fund, church groups).

- The time saved provides an opportunity for women to spend more time strengthening their social networks, undertaking household duties (cleaning) and, in some cases, activities such as knitting. The savings in time have different impacts in different communities. In Onseepkans the savings impact on the immediate household, whilst in Huhudi, and to a lesser extent in Pniel, the impacts can extend their influence to the resource centres. In Onseepkans and Pniel, women commented that they had more time to engage in community management issues (crèche, feeding scheme, church). No increase in the involvement in community politics was found in any of the communities.

Solar cookers have had a limited impact on community management and politics, and the role of women in these activities. Some women indicated that they had more time for community management activities, but this was marginal, and was mainly concentrated on the church. ■

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Gender and Health Considerations for Petroleum Product Policy in India

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This paper arises out of work done under a capacity building project supported by United Nations Development Programme, and executed by the Ministry of Environment and Forests and implemented by the Indira Gandhi Institute of Development Research.

The household sector still remains the major consumer of energy in most developing countries. Energy for cooking purposes is obtained predominantly from bio-fuels. In India, bio-fuels, including wood, agricultural crop residues and animal dung, are the principal sources of household energy. 74% of the population live in rural areas, and more than 90% of rural households rely on such non-commercial energy sources.

There are many externalities to the use of these bio-fuels for cooking purposes. Externalities are factors which are outside of market transactions and in general they may be positive or negative. Parikh J.(1995) noted the following negative externalities of bio-fuels in her paper titled "Gender issues in energy policy".

BOX 1: Externalities of fuel wood use

1. Hardship to collect and transport.
2. Time lost in collecting and transporting, and opportunity cost of the time.
3. Indoor air pollution and corresponding health effects.
4. Accompanying deforestation in some places.
5. Extra burden for cleaning walls, utensils and clothes due to unclean fuel.

Women are responsible for managing the fuelwood cycle from its collection to its final use and are therefore most affected by its use.

Girl Child in the 21st Century! (Photo: J. Parikh & V. Laxmi)

Parikh, J. (1996) has also emphasised that energy analysts and policy makers at the macro level have not paid enough attention to gender issues. They have assumed the energy sector to be independent of gender considerations. Commercial fuel availability, especially of cooking fuels, is constrained by import policies. It has also been argued (Parikh J. 1996), that access to clean fuel should be considered as an indicator of human development.

This paper develops further some of the arguments provided in the above articles.

Increased Access to Cleaner Fuels: What are the Alternatives?

Increased availability of cleaner fuels such as biogas, kerosene, liquid petroleum gas (LPG) and electricity, and the use of solar cookers, can reduce indoor air pollution. The design of biogas plants needs to be further improved to make them sustainable with just a few cattle or buffalo. More work is needed to develop reliable, cost-effective community designs and evolve effective institutional arrangements to operate them. To make solar cookers more widely acceptable, improvements in the design of the cooker are needed so as to make them less expensive and more convenient to use. Since LPG, propane and butane are in limited supply, and involve the movement of heavy cylinders, their use is limited to urban and semi urban areas. Appropriate stoves are also expensive. Electricity is neither reliable nor cheaply available in rural areas. Therefore, kerosene is often the next preferred fuel for cooking since it is clean, convenient, controllable and transportable. Presently its availability in the countryside is inadequate. The average use per person is about 12 litres per year whereas if all cooking was done using kerosene the requirement would be some 50 litres per year.

Sectoral Fuel Allocations: Inequitable Priorities?

How much kerosene would be required to eliminate wood fuels? What is the magnitude of the required supply? Can clean fuels penetrate rural markets? Would this impose a high burden on oil imports? How much oil is consumed by other sectors? What are their shares and growth rates?
Is it difficult to provide extra kerosene for cooking from macro-economic considerations - or is it just neglect built into allocation policies over decades reflecting gender bias?

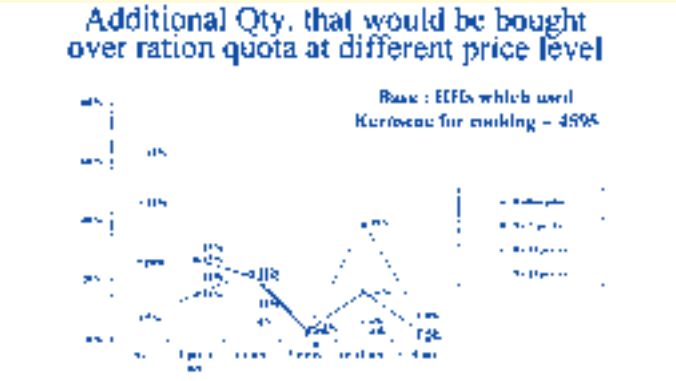
Purchasing Power in Rural Households

An additional 10 million tonnes (mt) of kerosene or LPG would be required to replace bio-fuels in 50% of the households currently using them. This figure has been arrived at by assuming the combustion efficiency of kerosene and LPG to be 40%, as compared to 5-10%for bio-fuels. A question that arises is whether there is adequate purchasing power in the rural areas to absorb more kerosene? (We are considering kerosene since LPG is used as a cooking fuel only in urban areas.) A survey conducted by the National Council for Applied Economics Research

shows that rural markets are growing, and the gaps between consumer tastes in rural and urban households are narrowing. The rural market share of total consumer durables rose from 54.2% in 1989-90 to 57.9% in 1995-96. The rural share of high value items (above Rs. 6000) has also risen, for example the rural share of video cassette players and video cassette recorders increased from less than 5% in 1989-90 to 20-30% by 1995-96. Over 75% of low priced good such as bicycles, transistor radios, mechanical wristwatches are sold in rural areas (The Economic Times, 1998). This does not imply that a large fraction of the rural population own these, but rather that they control a sizeable market share. If there is intra household equity, such that women's preferences influence the household consumption basket, kerosene should certainly find a place.

Recently, a study conducted by the Indira Gandhi Institute of Development Research in the rural areas of the state of Tamil Nadu, covering 30 villages in four districts, concluded that respondent households would be willing to switch to kerosene if it was abundantly available at a price of Rs.3 per litre. At the time of survey, Sept. 1999, this was the price that they paid for kerosene from ration shops (PDS). This price was raised to Rs.5 per litre in Feb. 2000.

If available at Rs.3 per litre, the average additional requirement would be 9 litres per month (in addition to what they currently get from the ration shop). If available at Rs.7 per litre, the additional requirement would still be 6 litres. The requirement ranges from 5 litres in the case of households with an annual income of less than Rs.6,000, to 8.2 litres for households with an annual income of over Rs.30,000.



These potentially willing consumers could be converted to commercial fuels, and this would reduce the pressure on the fuelwood consumed by the poor who cannot afford commercial fuel. Even if only 5% to 10% of households shifted to kerosene from fuelwood, there would be a reduction in the shortage of fuelwood. Moreover, the burden on subsidised kerosene could also be reduced. The fact that adequate kerosene is not available, even for those households who can afford it, indicates the low priority given to the cooking fuel needs of millions of households. This reflects the low priority given to women's needs in the energy sector. Given the adverse health impact, it should get at least as much priority as other sectors. Large commitments of 10 to 20 mt of oil have been made to other sectors such as transport and, more recently, the power sector.

Petroleum Product Imports by Sector: Gender Bias

In 1995-96 cooking fuels accounted for only 19.3% of the total consumption of petroleum products (Table 1), whereas transport fuels accounted for 55.5% (Annual Report, 1996-97). The consumption of kerosene in 1995-96 was 12 litres/year per person, approximately one quarter of the normative requirement (i.e. 50 litres/person/year). The projected demand, reflecting Government policy, predicted demand growth from 1997 to 2002 of 6% and 6.5% per annum respectively for diesel and gasoline, whereas for kerosene it is only 4%.
Similar commitments on petroleum products are also made in the power sector. Recently, the Ministry of Petroleum and Natural Gas has allocated nearly 20 mt of liquid fuels to the power sector (CMIE, July 1997). The rate at which petroleum fuel consumption is rising in other sectors shows that there is far less priority placed on women's health, especially in the rural areas.
To meet kerosene demand, the country would need to examine its import policy for petroleum products and incorporate the demands of the rural households that rely predominantly on biomass fuel for cooking.

Table 2 shows that during 1991-96 diesel imports rose from 4.7mt to 12.8mt (a 168% increase), while kerosene imports went up from 3.3mt to 5mt (a 51% increase). The proportion of kerosene in the total import of petroleum products is declining and fell to 26% in 1995-96 from 42% in 1990-91 in Rupee terms. In the same period, the diesel share of imports (in value terms) increased from 49% to 62%. It is true that diesel is used for "productive" purposes from which revenues can be earned, but the amount of kerosene required to satisfy all the cooking needs is relatively small. As noted earlier, 10-12 mt of clean fuels could replace the bio-fuels, used inefficiently, in 50% of households. When the burden of diseases caused by the use of dirty fuels along with the benefits of increased productivity by women are considered, it makes sense to re-evaluate the relative priorities. Furthermore, the use of diesel for transportation has many negative impacts such as air pollution, opportunity cost of land used for roads and parking spaces etc. which should be added to its price.

Subsidies Cause Scarcity

It is clear that there is a shortage of commercial fuel for cooking. Even those who can afford to pay for kerosene cannot get it because of the limited supply. Ironically, it is possible that the subsidies on kerosene are the reason for its non-availability. Firstly, low or zero trade margins give traders little incentive to sell kerosene. Secondly, some of the subsidised kerosene disappears from its own market and reappears on the open market at a price (Rs.7 to 10 per litre) two to three times the subsidised price (Rs.2.90 per litre). It is also used to adulterate costlier diesel (Rs 9/litre) in the transport sector. The Government has given kerosene an open general licence (OGL) but the private sector has not yet entered the market in a big way due to problems with shipping, storing and transportation, and because it would be a new business for them. The reasons for market failures need to be understood and addressed. What is needed is a parallel market for kerosene, where non-subsidised kerosene would be available to those

Table 1: Consumption of Petroleum Products (M Tonnes)

Year	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
Cooking Fuels						
Kerosene	8.4	8.3	8.5	8.6	8.9	9.2
LPG	2.4	2.6	2.8	3.1	3.4	3.5
Total	10.8	10.9	11.3	11.7	12.3	12.7
Transport Fuels						
HSD*	21.1	22.6	24.2	25.8	28.2	32.3
Gasoline	3.55	3.5	3.6	3.8	4.1	4.2
Total	24.5	26.1	27.8	29.6	32.3	36.5
Total of petroleum products	55	56.9	58.9	60.8	65.4	65.7

* HSD – High Speed Diesel
Source: Annual Report- 1996-97. Ministry of Petroleum and Natural Gas.

Table 2: Import of Petroleum Products
(Quantity: Tonnes * 10^3), (Value: Rs * 10^9)

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
Cooking fuels						
Kerosene						
Quantity (Q)	3340	3367	3463	3946	4240	5001
Value (V)	19.63	18.24	20.08	23.70	24.05	33.25
LPG Q	329	215	328	410	592	678
V	1.60	1.48	2.18	2.37	4.16	5.35
Total Cooking Fuels Q	3669	3582	3791	4356	4832	5679
V	21.3	29.7	22.18	26.07	28.23	39.6
Transport Fuels						
High Speed Diesel Q	4680	5329	7159	7555	8637	12852
V	22.82	26.50	36.91	41.74	43.60	77.60
Total Transport Fuel Q	4707	5353	7159	7555	8715	12949
V	22.89	26.6	36.91	41.74	44.11	78.29
Total Petroleum Products Q	8660	9445	11283	12076	13951	20335
V	46.60	2.18	63.59	70.41	75.21	125.7

Source: Annual Report. Ministry of Petroleum and Fertiliser 1996.

who have purchasing power.
Efforts should be made to increase the per capita availability of kerosene, at least in the rural areas, which could reduce the burden of diseases suffered primarily by women and children. Of course the use of kerosene can be developed slowly, over say 5 to 10 years, rather than overnight. This gradual increase would give time to adjust alongside other interventions to reduce indoor air pollution such as technologies for processing renewable biomass into cleaner burning fuels. The goal should be to use clean gaseous and liquid fuels in the stoves.

Conclusions

The bio-fuels used for cooking have many negative externalities and women and children are the main sufferers. More attention is required by energy analysts and policy makers at the macro–economic level to address gender issues in the energy sector.

There is a need to change the policy on petroleum products in order to make kerosene available to the people who are willing and able to pay for it on the open market at an affordable price. In most places, subsidised kerosene is limited to 3 litres per household per month, hardly enough to meet the lighting demand. The Government should reformulate its policy to make an effective and successful parallel marketing system for kerosene. This will lead to a reduction in drudgery for a number of women and children, and will also ease the pressure on forests and other bio-fuel resources. Once the segment that can afford to pay is catered for, the poor who cannot afford commercial fuels should be under reduced pressure. ■

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Internet Resources

WWW

Forestryforum: is a worldwide, interactive emailing list of the forestry community and other interested parties set up to enable discussion and collaboration. Its purpose is to facilitate the exchange of views and debate on issues relating to forestry and forests. You can join by sending an empty e-mail to: **Forestryforum-subscribe@egroups.com** or contact: **Forestryforum-owner@egroups.com**

Energyforum: is an interactive, free, e-mail discussion list aimed at mutual exchange of experiences, information, knowledge and ideas on sustainable energy development and consumption issues. To join this group and start making an input simply send an email to: **Energyforum@egroups.com**. To modify your subscription you can visit the eGroups website at:
<http://www.egroups.com/mygroups>

First Ever Virtual Energy Conference: WEC and RMR Design joined forces to host the first ever multimedia virtual energy conference, EnergyResource2000, from 15-26 May at: **<www.energyresource2000.com>**. As a follow-up to the virtual conference the site has become an energy portal that will feature information on energy related issues. For more information please contact:
Ted Mole email: mole@worldenergy.org

The Cyber Gateway to Women's Global Activism: WomensWire, a web magazine founded by Anaga Dalal, a magazine editor in New York, was launched on International Women's Day, March 8 2000, with a special edition covering the United Nations' forthcoming June review of the 1995 Beijing Women's Conference. A new addition to the site is an archive section with articles on young women's activism and NGO access. For more information visit the website at:
<http://www.womenswire.net> or
<http://www.womenswire.org>

European Internet pages for Directorate General (DG) – Development: *ENERGIA* readers may find the new European Commission Internet pages for the Directorate General (DG) covering Development useful (thanks to Grant Ballard-Tremeer and Liz Bates for this information). Parts of the site are available in ten European Union languages including French and Spanish, although links from many sections go through to English language pages. The starting point is at:
<http://europa.eu.int/comm/development/>.
The pages on sectoral policies (of particular interest to list members may be: Environmental Integration, Support to NGOs, Forestry, Health, and Gender sectors) are worth a look. They are available in French and English at the following addresses:
English:
<http://europa.eu.int/comm/development/sector/index_en.htm>
French:
<http://europa.eu.int/comm/development/sector/index_fr.htm>
More specifically, the DG - Development pages for "Sustainable Development and Environment" (so far only available in English - other languages are likely to be available shortly) are at:
<http://europa.eu.int/comm./devlopment/sector/enviroment/index.htm>

The Bulletin Board

CONFERENCE INFORMATION

International Conference on Biomass-based Fuels and Cooking Systems (BFCS-2000)

The Appropriate Rural Technology Institute (ARTI) is hosting an International Conference on Biomass-based Fuels and Cooking Systems (BFCS-2000), at Pune, during November 2000. The emphasis will be on new trends in stoves research, for example, conversion of biomass into higher grade fuels, and stove designs for efficient utilisation of these fuels, in particular for cooking. Both biogas technology and the design of ordinary wood and biomass burning stoves are excluded because these have already been discussed extensively in several international forums.

The conference will include sessions on (a) strategies for the popularisation and commercialisation of improved stoves and biomass-based fuels among rural people in developing countries, and (b) health and environment-related issues linked to the use of biomass for cooking and room heating, as well as possible solutions to these problems.

Research on the efficient utilisation of biomass for cooking is in progress worldwide and nearly 145 researchers from more than 30 countries have come together to form the discussion group **stoves@crest.org**, maintained by the Centre for Renewable Energy and Sustainable Technology (CREST). The informal exchange of information through the discussion group has proven highly beneficial to research activity around the world. However, a need to get together to facilitate face-to-face discussions and the exchange of ideas, and to see real demonstrations of the devices discussed and visualised through the electronic medium, has been felt for quite some time by members of the group. This need is the motivating factor behind the proposed conference.

◆ For more information, please contact:
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E-mail: karve@wmi.co.in
Website at:
<http://www.ikweb.com/enuff/public_html/conference/wpm$301c.htm>

WREC Energy and Gender Workshop

During the World Renewable Energy Congress, to be held in Brighton, England, from the 1st - 7th July, the Intermediate Technology Development Group (ITDG) will be facilitating two technical sessions on Gender and Energy on the 5th July.

Session 1: Linking Gender and Sustainable Energy

This will consist of four 15-minute paper presentations each accompanied by a ten-minute discussion. Barbara Farhar from NREL will give the keynote paper on 'Progress on linking gender and sustainable energy', followed by presentations on gender and participation in Nepal, Sri Lanka and East Africa. To conclude the session Sheila Oparaocha will give a brief overview of the role and work of *ENERGIA*.

Session 2: Energy, Gender and Sustainable Livelihoods

The second two-hour session will be based on a real case study in Nepal and includes a presentation and interactive discussions highlighting the importance of gender and energy within the livelihoods framework.

◆ For more information, please contact:
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PUBLICATIONS

REPSOVISION: An Outreach Effort of REPSO, Winrock International India

Despite the fact that women are the fuel collectors, processors/users, and managers of household energy systems, they have had no active role in planning or implementing any rural energy interventions in India. Several studies carried in India indicate a serious need to promote their involvement in order for interventions to succeed.

Given the long history of implementation in India that can afford valuable lessons, Winrock International India's REPSOVision newsletter makes concerted efforts to document and disseminate the lessons learnt. Within the last two years several case studies where projects have helped stimulate existing women's self-help groups with established rural networks to enter energy service businesses, or where women's groups or co-operatives were the main "change agents" for new renewable energy technologies have been examined. REPSOVision Vol 2, January 1998, describes the revolving "Basket Solar Fund" where women basket weavers use solar lighting to increase their income and savings. Vol 7, April 1999, discusses rural energy and women. It describes a "Solar Literacy Fund" (West Bengal) and "Solar Co-operatives" (Karnataka) set up in India, and the "Solar Sisters" in Nepal.

By documenting experiences of women, especially where renewable energy projects were linked to income-generating activities, a growth in the local economy leading to a greater load demand is envisaged.

◆ REPSOVision is currently available, free of charge from:
Anita Khuller Editor, Winrock International India, 7 Poorvi Marg, Vasant Vihar
New Delhi 110 057, India;
Tel: +91.(0)11.6142965
Fax: +91.(0)11.614 6004
Email: winrock@vsnl.com, Website at:
<www.renewingindia.org>

Renewable Energy in India

In 1984, TERI became involved with Dhanawas, a village in northern India, to gain field experience in planning for the energy needs of a rural community and finding sustainable solutions to meet these needs. The book, *Renewable Energy in India*, is the result of 15 years of action-oriented field research in the village. The long association with a single village and its people provided valuable insights into the complexities of the rural energy system and the socio-cultural dimensions that determine people's access to, and use of, energy, particularly women since they are the managers of household energy. Most importantly, it captures the changes in the needs and aspirations of the people of Dhanawas in a rapidly changing socio-economic scenario (including attitudinal changes such as the importance of female literacy) and the impact of these changes on people's energy choices. It was this understanding that brought to light the need for sensitivity to gender based inequities, especially with regards to natural resources, when designing strategies to alleviate rural energy problems. The issues highlighted in the book are of relevance to all stakeholders in rural and renewable energy in India.

◆ For more information, please contact:
TERI Information Dissemination Services, Darbari Seth Block, Habitat Place, Lodhi Road, New Delhi-110 003, India

Next Issue

The next issue of **ENERGIA News** (vol. 3.3) will be devoted to 'Women and Energy in Africa'. The deadline for articles and case studies for the next issue is 6th August 2000. Your contributions - articles and/or case studies (1500 – 2500 words) – are most welcome.

ENERGIA News plans to publish the *ENERGIA* directory of the names and contact addresses (postal address, telephone and fax numbers, email and web site addresses) of all subscribers. The directory will also be posted on the ENERGIA web page. If for privacy reasons you do not want any part of your address published or posted, please write to us and let us know. We kindly urge you to fill in the Data Sheet enclosed in this issue, which will also help us to update our records. When completed please send it to the **ENERGIA News** Secretariat.

ENERGIA is an international network on Women 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" women, through the promotion of information exchange, training, research, advocacy and action aimed at strengthening the role of women in 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.

ENERGIA News is produced jointly by Energy, Environment and Development (EED, Kurten, Germany), the Technology and Development Group (TDG, Enschede, the Netherlands) and ETC Energy (Leusden, the Netherlands) which houses the secretariat. 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 ask in exchange that our subscribers 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 with any query please contact:

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Themes for future ENERGIA News

Africa Issue: Volume 3>Issue 3>September 2000
Deadline for submissions: 6th August 2000

WREC – Energy and Gender Workshop Issue: Volume 3>Issue 4> December 2000
Deadline for submissions: 6th November 2000

Southeast Asia Issue: Volume 4>Issue 1>March 2001
Deadline for submissions: 4th February 2001

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