MAINSTREAMING GENDER IN ENERGY POLICY

Thematic Papers

- Gender and Energy: An Introduction
- The Energy, Poverty, Health and Gender Nexus: A Case Study of Himachal Pradesh, India
- Mainstreaming Gender in Energy Policy: The Indian Experience
MAINSTREAMING GENDER IN ENERGY POLICY

DR. JYOTI PARIKH
SAUDAMINI SHARMA

SPONSOR

ENERGIA
International Network on Gender and Sustainable Energy
The Netherlands

INTEGRATED RESEARCH AND ACTION FOR DEVELOPMENT (IRADe)
50, Chotta Singh Block, Asian Games Village Complex
Khelgaon, New Delhi – 110049, India
PREFACE

IRADe aims to combine research, action and training programmes and policy analysis in various themes for the purpose of comprehensive policy advocacy. Gender and energy is an area where IRADe is active. Last year, Energia international, a gender and energy network sponsored a research project on “Does access to energy lead to gender empowerment in Himachal Pradesh”. This was followed by a dissemination workshop attended by the representatives of State Governments, NGOs, academics and industry organizations. Energia international requested IRADe to carry out advocacy work by working with Planning Commission. Subsequently, IRADe is active in implementing action and training programmes in collaboration with Self Employed Women’s Association (SEWA) where community biogas and solar assembly centres are being set up.

Thus, IRADe is active in research, action, training, dissemination and policy analysis. The latter resulted in policy paper titled “Mainstreaming gender in energy policy”. We are happy to express our thanks to Energia for supporting the many of the above initiatives. The policy paper contains examples cited both from India as well as other countries of the world to prove its point. It further argues that the current policy of favoring electricity over fuels needs to be balanced with more impetus for better access to fuels. The various problems of unavailability of modern fuels are also highlighted and possible interventions are suggested to counter them. We collected women’s opinions on a number of issues to finally prepare a comprehensive guideline.

Jyoti Parikh
Executive Director
IRADe

The paper “Mainstreaming gender in energy policy” is one of the outputs of IRADe's successful national advocacy effort to mainstream gender into the India Energy Policy. The effort of preparing the advocacy paper was lauded by Energia. It is hoped the paper aims to provide guidelines and lessons from the Indian experience on how gender concerns can be addressed in mainstream energy policy.

Sheila Oparaocha
Energia Secretariat
Background

Energy is a key factor in economic and social development. Worldwide, more than two billion people lack access to sustainable and modern energy services, using traditional solid fuels for cooking and heating. Limited access to energy is a problem that has a disproportionate effect on women, especially in rural areas. It is most often women who must expend large amounts of time and physical effort to supply fuel for their households and productive needs, using their own labour to carry heavy loads over increasingly long distances, at great risk to their health and safety. Other health hazards arise from the fact that women do most of the cooking. They and their young children are exposed to large amounts of smoke and particulates from indoor fires and suffer from a number of respiratory diseases. Lack of energy services is directly correlated with the major elements of poverty, including inadequate healthcare, low education levels and limited employment opportunities.

Gender issues have come to the forefront in many development sectors including agriculture, forestry and water but the energy sector has been slow to acknowledge the links between gender equality, energy and development. Insufficient access to modern energy and existing patterns of energy use, processing, and collection affect women and men differently. Because of their socially determined gender roles, women and girls assume a higher proportion of the burden of unavailable energy services and inefficient energy use. Thus, greater attention to the needs and concerns of women in these areas could help governments promote overall development goals like poverty alleviation, employment, health, and education through improved energy policies.
ENERGY, POVERTY, HEALTH AND GENDER NEXUS CASE STUDY FROM INDIA
India, with a population of slightly more than one billion people, uses a variety of both commercial and non-commercial energy sources. However, 625 million people do not have access to modern cooking fuels and 296 million do not have access to electricity (Census 2001), and this lack of access affects especially women. This article explores the linkages between gender, energy, poverty and health in the State of Himachal Pradesh in India while explaining the connections with empowerment. The article also emphasises the need for to the women, for capacity building, for an emphasis on women’s education and on energy for livelihood security.

Why Himachal Pradesh?

Himachal Pradesh (HP) was selected for the study because it is a mountainous state that requires energy for space and water heating for which biofuels are the primary source. As in other parts of the country, the rural women in HP spend much of their time each day collecting fuel and fodder for cooking and heating. Further, there is lot of physical effort involved in carrying heavy headloads of fuel over a hilly terrain in the absence of mechanised transport and access to modern energy. There are also negative health effects from indoor cooking and fires for heating (Parikh et al., 1999). Moreover, the time spent could otherwise be used for some economically productive work. The issues investigated in the study are whether access to energy on a sustainable basis empowers women by freeing them from daily drudgery enabling them to surge ahead in life, appropriate indicators of energy consumption, household assets, health, literacy etc., and how women view this problem in terms of their own economic, environmental and health priorities.
Women are Particularly Affected by Energy Poverty

Limited access to energy has a disproportionate effect on women in general and especially economically, and the women in HP are no exception. Biofuels are still the primary source of energy in the state, with 93% of the population using them for cooking and other purposes. There is a large difference in the average consumptions of biofuels and clean fuels in the state: the average household uses 222 kg per month of biofuels compared to a meagre 7.8 litres (6.5 kg)\(^1\) of cleaner fuels. In HP, women spend on average, each month, 40 hours collecting fuelwood. This breaks down to 15 round trips, each of 2.7 hours, and a monthly distance walked of some 30 km. The results of the study give a clear indication that although the state has progressed in terms of education, asset ownership etc.; in terms of access to clean fuels and energy technology it continues to lag, and the brunt of the effects of this is faced primarily by the women. It should, however, not be overlooked that LPG and kerosene use is quite high compared to many places, and that penetration has increased in the last few years.

Traditional Fuels Negatively Affect Human Health

This paper brings out, for the first time, the linkages between health impacts and gender for various age groups. The study has revealed that girls below the age of five years and females in the 30-60 age group (who are usually the chief cooks in a family) are at higher risks than males in the same age groups (Figure 1). Illiteracy and smoking habits also affected the respiratory health of individuals in the state.

![Figure 1: Vulnerability by age group in Himachal Pradesh](image)

*Symptomatic signifies indicative of a particular disease or symptom

\(^1\) 1 litre = 0.8 kg for kerosene

Integrated Research and Action for Development
What do Women Want?

For effective intervention, it is essential to know how women rank their priorities, what their aspirations are, and what they think about their empowerment status. It was found that, in HP, women are more empowered and exercise their decision-making power more at various levels than in other states. As many as 80% of women in HP have access to money, and most of them are regularly exposed to some form of media. Despite this, the women in HP still suffer the drudgery of using biofuels. In the process of collecting and transporting fuelwood, women were found to face numerous difficulties including the strenuous physical exercise in procurement and the time involved in the overall process. The study revealed that about 70% of the women in the 30 – 45 age group are involved in cooking, and about 53% of women who are above the age of 46 are not involved in cooking. The women in the age group of 30-45 years, who are usually the main household cook, are thus more exposed to smoke and indoor air pollution than other family members. However, it is the women aged currently over 45, are most likely to suffer from respiratory diseases, presumably due to accumulated exposure for many decades. Women cited, as the main health problems related to fuelwood use, physical strains as coughing, backache, headache, neck ache, bruises, wild animal and snake encounters and burning eyes. Figures 2, shows comparative graphs for two districts in HP, Shimla and Sirmour, depicting the main health problems that occur daily due to fuelwood. In the two districts studied, 64% and 39% of women suffer daily occurrences of backache compared to 42% and 65% who have daily coughing attacks (first quoted figures for Shimla throughout).

![Main health problems due to fuel wood - daily](image)

**Figure 2: Comparative graph of two districts of daily occurrence of health problems**
The survey attempted to gain an insight on the view of respondents regarding willingness to shift to clean fuels and found that in urban places like Shimla an overwhelming 83% are ready to shift to clean fuels as compared to 43% in Sirmour which is poorer and far from urban areas. People cited time saving being the chief reason to shift to clean fuels. Also, respondents had a higher willingness (94%) to pay for ventilation in houses rather than for improved stoves (34%). The study thus points to the fact that the women in HP need to be freed from the drudgery of biofuels, which poses health problems and time constraints for them, and they are willing to shift to clean fuels.

**Impact of clean fuel access policy and empowerment**

Himachal Pradesh has a Government policy to allocate additional quota of clean fuels (LPG, kerosene) in hilly areas to prevent deforestation i.e. 20 litres per household as against 5 litres elsewhere in India. In addition to this, a healthy trend of increased use of LPG in HP was observed.

Higher clean fuel access may have led to more empowerment as is observed in NHFS 2 data. For example, women aged 15-49 years are regularly exposed to some form of media in HP, more than 70% of the women watch TV at least once a week. As many as 80% women have access to money in HP compared to a lowly 59% of All India. Domestic violence is not a major issue in HP. Participation in women’s organizations is high and that generates awareness of various developmental programmes. However, strict causality is difficult to establish.

**Conclusions**

The link between energy and poverty has a pronounced gender bias.

The following conclusions emerge from, or are supported by, the study:

- Women are the main energy users as well as primary energy suppliers. Parikh [1995] previously observed that, apart from being the main energy users, women supply biomass energy that amounts to 10% to 80% of total energy supply in various developing countries.
- Long distances are walked to collect biomass. There is an economic burden on the poor in terms of the equivalent number of days spent in fuel collection and suffering from ill health.
- Regular exposure to harmful indoor air pollution has negative health effects. Exposure to this type of pollution is associated with a number of health risks, and increased mortality rates are now well documented (see for example, Smith, 1999 and Parikh et al., 1999). However, other diseases and discomforts, such as backache, bruising, headaches and neck ache, regularly result from transporting fuels and should receive similar attention.
Recommendations

On the basis of observations from the study, the following steps could be taken to improve the situation:

- At present women manage one-third of the energy system in India through gathering fuels. They need to be supported through management, investment and technology so as to manage it sustainably and with minimum hardship.
- Energy, health and the transport of fuels need to be addressed in order to reduce energy poverty. All these require more management and policy initiatives.
- Capacity building is needed to promote the use of efficient energy appliances and their availability.
- An emphasis needs to be placed on the education of women and spreading awareness.
- A national mission on “having cooking fuel available for rural women within one kilometre” is needed to reduce the hardships of carrying heavy loads. In addition, transportation should be made easier by enabling access to transportation solutions such as wheelbarrows, better pathways, and small motorised transport with community arrangements for carrying heavy biofuel loads.
- Women could form co-operatives to grow trees for fuelwood or plant oil seeds. This would put an end to searching and gathering by organising wood supply on a sustainable basis.
- Continue to provide subsidy to promote clean fuels.
- Mass awareness programs for popularising clean fuels.
- Promote Self Help Groups for empowering women.
- Develop micro-enterprises by interlinking microcredit and energy programmes, and shift from government initiatives to public–private partnerships.
- Create rural fuel markets by establishing a value for the fuelwood collected or grown, and so add an economic value.
- Access to energy should be linked as a promotional incentive for running small-scale energy business units for livelihood security and creating more employment opportunities for women.
- Health centres should be sensitised to the issues associated with indoor air pollution and the workers trained to spot and address respiratory diseases as well as problems linked to transporting fuels.
- Policy initiatives require a shift of focus from energy supply to end-use services.
- There is a need to look beyond cooking fuels, and at energy for livelihoods, lighting, transport, agriculture, and also water and sanitation.
Introduction

Gender mainstreaming means moving gender equality concerns from the backwaters and side streams into the mainstream. Instead of having separate policies for gender equality; or adding –on gender equality concerns to already formulated policies, programmes and procedures; a gender perspective is introduced from the beginning into all policies, programmes and procedures.

Alleviation of poverty and the promotion of gender equity are the primary goals of sustainable development. Lack of access to affordable energy services is a serious barrier to sustainable livelihoods and emergence from poverty. According to statistics of the World Bank (2000), approximately 2 billion people in the world still lack access to basic energy services. The need and demand for energy services is expected to increase dramatically. As a reaction to that, new policies and projects to provide energy services need to be developed while addressing gender issues. Women are managing 1/3rd of the energy system by gathering fuels. Their roles as energy managers must be backed with inputs of investment, management and technology.

This paper contains examples cited both from India as well as other countries of the world to prove its point. It further argues that the current policy of favouring electricity over fuels needs to be balanced with more impetus for better access to fuels. The various problems of unavailability of modern fuels are also highlighted and possible interventions are suggested to counter them. Women’s opinions on a number of issues were collected to finally prepare a comprehensive guideline.
Why gender?

Energy policies generally focus on the energy supply side - increasing supplies of electricity and liquid fuels – with little attention paid to the energy demand characteristics of rural communities and women in particular. However, men and women have different levels of access to different energy sources. Changes in the availability of energy, due to policy interventions, have different impacts on men and women. Therefore, gender needs to be taken into account when developing energy policy. Also, in most developing countries, the largest energy programs are aimed at rural electrification but implicit in these programs and policies is the assumption that the benefits of electricity are gender neutral.

Lessons from other countries

A. Lessons from USA and Europe:

During the electrification process in Europe and USA in the period 1920 – 1950, it was observed that in case of Europe, women were left aside during the whole process of electrification. It was all – male (or “nude”) electrification. In America, the process of electrification extensively involved women, and focused on increasing comfort and convenience through household appliances.

The American utilities realized the holy alliance between women and industry. Women need industry to popularize home economics and industry needs women to market its products. Hence the participation of women in electrification subsequently proves profitable for the industry and thus the domestic market of appliance flourishes.

<table>
<thead>
<tr>
<th>Diary of Elbert and Erma Cassel, members of Oklahoma Cooperative (1939-50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• On July 27, 1939, they signed for cooperative membership.</td>
</tr>
<tr>
<td>• On June 1, 1940, uncle Lak wire house was set.</td>
</tr>
<tr>
<td>• On August 8, 1940, i.e almost after one month the Cassels got electricity.</td>
</tr>
<tr>
<td>• In the very same month, after 16 days on August 26, 1940 they bought a washer.</td>
</tr>
<tr>
<td>• After 2 months on October 29, 1940 they bought a radio.</td>
</tr>
<tr>
<td>• In the next two months on January 6, 1941 the Cassels had a wired milk farm.</td>
</tr>
<tr>
<td>• After 6 months on July 25, 1941, they bought iron.</td>
</tr>
<tr>
<td>• On September 19, 1941, after buying iron they next bought a refrigerator.</td>
</tr>
</tbody>
</table>

Source: Women’s Electrification, Michael Matly, MARGE, CR Gon Gender and Energy, 2005
Thus within a span of 2 years, after becoming the member of cooperative, Elbert and Emma Cassel, had improved their standard of living with various modern appliances and gadgets. This process continued for more years as and when new appliances developed.

**B. Lessons from Africa:**

There are a few key questions that should be asked while formulating a gender sensitive energy policy:

- Is gender mentioned in the national energy policy? If yes, in what context?
- Is gender mentioned in the national power policy? If yes, in what context?
- Are there mechanisms in the national power sector strategy for stakeholder input and participation?
- What is the gender composition of the power sector policymaking body?
- Are gender experts or women’s organizations involved in the power sector policy making process?
Review of power policy documents of countries in Africa

<table>
<thead>
<tr>
<th>Country and summary of gender policy</th>
<th>Number of times gender/women and gender specific policy statements/ measures are mentioned</th>
</tr>
</thead>
</table>
| **Botswana**                        | Gender (5)  
Women (14)  
Policy statements (1)  
Policy measures (1) |
| • Strong statements of commitment to gender equity. Acknowledges women’s roles and problems but no framework to address them. |                                                                                       |
| **Kenya**                           | Gender (6)  
Women (6)  
Policy statement (0)  
Policy measures (1) |
| • Strong statement of commitment to redressing gender imbalance. Limited education and welfare goals planned |                                                                                       |
| **Tanzania**                        | Gender (11)  
Women (16)  
Female (1)  
Policy statements (5)  
Policy measures (0) |
| • Strong statements of commitment to gender equality. Welfare measures planned. Participation of women encouraged but not required. |                                                                                       |
| **Zimbabwe**                        | Gender (0)  
Women (0)  
Policy statement (1)  
Policy measures (0) |
| • No mention of gender issues in energy documents. No explicit policy measures to address gender issues or women’s interests. |                                                                                       |

**Current situation in India**

India, with a population of slightly more than one billion people living in 25 states, is the second most populous country in the world, behind China. At a growth rate of 1.6% per annum, the country's population is projected to grow to 1.16 billion by the year 2010. The Indian economy uses a variety of energy sources, both commercial and non-commercial. The 2001 census finds nearly 700 million people without access to modern energy. Nearly 300 million people do not have access to electricity, but what is more, even larger number viz 625 million do not have access to modern (cooking) fuels. Nearly 3 billion days are spent in...
gathering fuels and 700 million days in processing them i.e., chopping, drying, turning, storing, stacking and handling. About 800 million days are spent due to diseases.

The traditional approach to energy in development policy and planning has assumed *gender neutrality*. It has assumed that a good energy policy, programme or project will benefit both male and female equally in meeting practical needs. It has assumed that any differences in the needs and capacities of men and women do not affect the extent to which they benefit from and contribute to energy development and use. What we find in reality is that energy planning is *gender-blind*, that it fails to recognize that needs of men and women are different. In attempts to redress this issue, in more recent decades, attention is increasingly being paid to women’s needs in national energy policies. In most cases such attention has been confined to household energy, as women are usually the chief cooks and main procurers of household fuel. In developing countries, the main fuel for cooking is biomass in its traditional form, including cow-dung, firewood and charcoal. Thus where attention has been paid to women in national energy policies, the focus has tended to be confined to traditional biomass energy concerns limited to cooking and household needs. One needs to extend it to the productive activities for livelihoods, self-fulfillment activity such as educated, cultural and social and safety and security (street lighting).

Moreover, in India, both politically and technically electricity is pushed more than the fuels in spite of the fact that electricity is costlier than fuels. The 2001 census data given in Table 1 shows that 296 million people do not have access to electricity, and 625 million people do not have access to modern fuels such as LPG and Kerosene (Table 1). People without modern energy services must spend more of their time and physical energy on survival and, therefore, have fewer opportunities to pursue educational and income-generating activities.

**Table 1: Accessibility of electricity vs. use of clean fuels for cooking (population in million)**

<table>
<thead>
<tr>
<th>Fuels</th>
<th>Electricity (Yes)</th>
<th>Electricity (No)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerosene/LPG Yes</td>
<td>94</td>
<td>23</td>
<td>117</td>
</tr>
<tr>
<td>Kerosene/ LPG (No)</td>
<td>352</td>
<td>273</td>
<td>625</td>
</tr>
<tr>
<td>Total</td>
<td>446</td>
<td>296</td>
<td>742</td>
</tr>
</tbody>
</table>

Source: Census data (2001)
**Purpose of a gender approach in energy planning:**

Understanding of how women should be involved in development has evolved over time. The current preference is to think not in terms of special or separate programmes for women, but in terms of gender mainstreaming. There are still a number of different positions, however, that can be taken regarding the reasons for various gender approaches in energy planning:

**The Analytical Frameworks:**

Energy policies by themselves may not change the roles of men and women in a particular society, but they can be used as entry points for promoting greater fairness in the allocation of opportunities and resources. In order to facilitate this, three analytical framework approach may be followed which are:

- **Gender analysis framework** - This framework looks at gender differences – typically differences in terms of responsibilities, time budgets and decision-making power. An engendered energy policy would recognize that women and men have different energy needs. Women make decisions relating to domestic energy uses (for example, in food preparation and heating water), therefore the burden of energy shortages, price increases and cost-recovery plans tend to fall disproportionately on women. Hence there is need to address the current gender differences prevailing.

In India, there is a division of labor and responsibilities in household, which has been captured by study done by J. Parikh et al. in the state of Himachal Pradesh, India. The results (as can be seen from Figure 1) showed that in both the districts, responsibility of fuel wood, agricultural residues and dung cake procurement was primarily of young women and older men. On the other hand procurement of modern fuels like LPG and kerosene was mainly responsibility of young men.

![Diagram of female and male responsibility for fuel procurement](image-url)
• **Political ecology framework** - This framework directly addresses women’s aspirations by hearing women’s voices on how to improve situation and what they find important and for what reason? This can be done by capturing women’s voices by means of surveys, opinion polls or voting. For example, when asked the reasons for shifting to clean fuels during the study of Himachal Pradesh (J.Parikh et al, 2000), following comments were received – “It is convenient to turn on / off”, “It is time saving” “I like it, since it leads to cleaner household” “We cannot afford it, it is very expensive” etc.

• **MDG’s and sustainable development** - This framework sees energy as an input to other development priorities. Expanded access to energy is an essential prerequisite to meeting all of the MDGs. Even UNDP has begun to advocate the adoption of a new global target for energy as a prerequisite to fulfilling other international development targets of the Millennium Goals.
Three Analytical Frameworks for Gender and Energy

Gender Analysis Framework
- Observe current gender differences.
- Division of labour & responsibilities
- Time budgets
- Access to productive resources & assets
- Income earning opportunities
- Decision making & empowerment

Political Ecology Framework
- Focus on
  - What ought to be (not how it is now)
  - Capture women’s aspirations from
    - Surveys
    - Opinion polls
    - Voting systems at various levels

MDG’s and Sustainable Development
- Reduce rural poverty through affordable energy services
- Reduce burden and drudgery
- Improved access to cooking fuels
- Promote economic opportunities for women
- Free time and empowerment through self fulfillment

Health Hazards:

Biomass fuels account for 80 percent of total household fuel supply in developing countries. Most of it is used for cooking, which is done primarily by women. As a result, women and their young children are exposed to high levels of indoor air pollution.
The Policy Initiatives:

It is important to note that the object of energy planning is not to add a special component on women, but to think in a different way about what kinds of projects to undertake in view of local gender issues. In some cases, however, pursuing this objective may lead to women-targeted energy initiatives. This is because current ways of using energy often adversely affect more women than men and, in some cases, contribute to limitations on women’s engagement in other activities. To tackle these issues, the following actions could be considered:

- **Shift in paradigms**

  While formulating the policy the government should shift its focus from energy supply to end use services. Energy experts must initiate new types of analyses regarding needs and priorities of end users and accumulate more extensive data on how people actually use energy. Greater understanding of the differing roles of men and women in particular cultures, in different locales, and at different income levels, can help enhance the effectiveness of energy projects, and development programmes as a whole, particularly in rural areas. Also, there should be shift from only government initiatives to public – private partnership. There should also be shift in paradigms in areas such as subsidies, which should be substituted with micro credits and loans or market based approaches, and low cost energy services should be provided to the rural poor.

- **The Process**

  **Project Formulation:** Projects should be formulated keeping this in mind and gender based outcomes should be highlighted.

  **Implementation:** Special efforts are needed to encourage women’s participation, or to include women in training programmes and learning opportunities.

  **Monitoring and Evaluation:** Assessments should incorporate the views of participants and end users, both men and women.
**Recommendations / List of possible interventions:**

1. **Project implementation**

   **1.1 A national mission on “Cooking fuel availability to rural women within 1km”**

   To reduce hardship to carry heavy loads, biomass should be easily available within one km of any household. Alternatively, kerosene or LPG should be available. A similar mission called ‘Rajiv Gandhi mission for drinking water’ has tried to bring the water within one km in rural areas after many years of work. In order to fulfill the above task a plan needs to be formulated. The plan may consist following aspects.

   a. Announce a policy under the existing poverty alleviation and social and economic development schemes such as employment guarantee and other schemes, whereby women’s group can form a Co-operative/user group for fuel wood or oil plantations rather than searching and gathering fuelwood, the same efforts can be put in to develop sustainable energy supply at the local level.

   b. The groups can determine what energy sources such as wood, agricultural residues, animal dung, oil seeds, solar, biogas, LPG or Kerosene that could be available at least cost and effort.

   c. Users group also can identify land (whether panchayat land or own land) and type of plantation (wood, oil seed, agriculture etc.) suitable to them.

   d. Understand the mission and build corresponding capacity and awareness by strengthening local level institutions as cooperatives and self-help groups.

   The institutions that can work in coordination for this mission are/ can be

   **User group:** These are the groups of villagers who directly benefit or are and affected by activities. For each of the identified activity like fuel wood or oil seed plantation, etc. on private land, community land and government land, such groups can be constituted.

   **Government:** The State Government in conjunction with various ministries such as Ministry of Environment and Forests (MoEF), Ministry of Rural Development (MoRD), Ministry of
Non-conventional Energy Sources (MNES), Ministry of Power etc. could support the programme by means of funds, manpower and training.

**NGOs, Women groups:** Women’s groups can take this up as a priority area for the programmes as energy and water related issues affect them the most. Therefore, promotion of women’s self help groups in all programmed villages. In this work help of various NGOs can be taken that are active in this area.

**Implementation group:** A necessary, implementation groups with representative from various stakeholders groups can be set up to deal with ranging issues from land, credit, what species to grow and how to plant for biomass supply, whether for wood or oil seeds and how to pay and receive benefits in cash or kind. A body, which will act as the Executive committee would manage the day-to-day affairs at village level and facilitate the participation of the entire village community. It has representation from all user groups; self help groups, panchayats and women. The Committee would be the vehicle, through which community meetings can be organized, plans drawn up and executed, records and accounts maintained. Funds could be distributed to community groups for executing the activities. If linked with rural employment guarantee and other such schemes. The funds can be routed through panchayat.

1.2 **Micro enterprise development**

1.2.1. **The role of Self Help Groups (SHGs) should be emphasized by interlinking micro credit and energy programmes**

The paradigm shift should be from “subsidy mind sets” to micro credit and loans. The role of Self Help Groups (SHGs) is to provide not only financial services but also social security to the rural poor. SHGs offer members access to credit both through internal lending and external sources providing them with working capital to strengthen and diversify livelihood activities. The women have shown willingness to pay for more and regular kerosene supply. They can also avail loans for energy development.

1.2.2. **Access to energy as promotional incentives for running small-scale energy business units**

Access to modern cooking and heating fuels, such as kerosene, LPG and natural gas, as well as electricity is stressed. The issues related to subsidies for both commercial and noncommercial sources should be raised and discussed. Many studies have found that energy subsidies have important implications for sustainable development through their effect on the
level of energy use and the types of fuels that are used. They are aimed at improving poor households’ living conditions by making those fuels more affordable and accessible. Where they result in switching from traditional fuels and improved access to electricity, those subsidies can bring considerable benefits to poor communities. In reality, however, these subsidies often benefit mainly the energy companies, equipment suppliers and the better-off households, especially in the towns and cities, and, in some cases, may not even reach the poor at all. As a result, many energy-subsidy programmes intended to boost poor households’ purchasing power or rural communities’ access to modern energy through lower prices (e.g., LPG subsidy to all users), paradoxically, can leave the poor worse off. There are three main reasons for this: The poorest households may be unable to afford even subsidized energy or may have no physical access to it, for example when a rural community is not connected to the electricity grid or LPG and kerosene are not reaching. Even if the poor are able to benefit from an energy subsidy, the financial value to them may be small since their consumption is generally modest. Higher income households tend to benefit much more in nominal terms since they consume more of the subsidized fuel. So the need is to design a market based policy for those who can afford while targeting subsidy for below poverty line (BPL) households.

1.2.3. To enhance the employment opportunities for women
Both rural and urban women need adequate energy supplies for their small- and medium-scale enterprises and home industries. Many of these informal sector activities are highly fuel-intensive, and their viability and costs are affected by energy prices and availabilities. Examples of energy-intensive micro enterprises usually operated by women include food-processing industries and kiln-using manufacturing activities. Because fuel is a significant cost factor, there is a commercial motivation to improve the efficiency of the entire process. Thus there is need to promote financing and other institutional mechanisms, including micro credit, Rural Energy Service Companies (RESCOs), community and other NGO-based approaches, and private participation in small-scale infrastructure provision.

1.2.4. Other measures for micro-enterprise development
- To identify micro-enterprises run by women that respond to village economic environments and meet local demand for daily necessities (cooking oil; flour milling; cleaning, grading and packaging of agricultural produce; kitchen gardens; medicinal plant cultivation; charcoal making; etc.)

- To create models and step-by-step procedures for setting up micro-enterprises and other income generating activities.
• Use locally available biomass to generate bio-fuel /SVO Promotion of jatropha plantation, vermi-compost, solar lantern assembly etc which will lead to employment generation at the local level and sustainable livelihood options to rural women through rural banks.

1.3 Promotion of local resources

Local energy sources such as biomass, wind, solar need to be promoted to provide energy services to the women as sustainable energy options. They should focus not only on meeting cooking energy needs but also on enhanced livelihood options. Although they are abundant and environmentally friendly, high initial capital costs and skewed distribution across the country act as major deterrents in the path of its becoming a viable energy source.

1.4 Continuation of current programs

Various current programs that are currently run by the government need to continue after checking on the modality for their effectiveness and efficiency and achieved outcomes need:

- Setting up of community kitchens with LPG. This program is being promoted by Ministry of Power and Natural Gas (MoPNG) where the rural women can cook their food on LPG in a community kitchen.
- Promoting Kerosene use by selling it on subsidized rates through Public Distribution System (PDS) for BPL households.
- 5 Kg LPG cylinders have been introduced in rural areas to make it affordable to the people.
- Ministry of Non-conventional Energy Sources (MNES) has initiated technology expansion programs in rural areas such as introduction of smokeless chulhas, providing improved cooking stoves and solar cookers etc.
- Village energy security programs are being run in rural areas, which promote biomass-based strategies. Under this program biomass is converted to electricity and fuels are provided by means of biogas plants etc.
- The Ministry of Power has initiated rural electrification programs so that electricity can reach to remote areas.
- Provision of soft loans/schemes for setting up small enterprises in the energy sector.

2. Capacity building

2.1 Promotion of the use of efficient energy appliances and their availability:

Improved access at the household level to clean, and affordable energy services/appliances is needed as per the Government specifications (i.e-ISI etc). The emphasis should not be only
on the means of energy supply i.e. whether through commercial and non-commercial sources but also on the end use appliances for energy efficiency and to get optimum results. Inefficient energy appliances stoves affect health, environment etc. Efforts should be made at the local and institution level to promote the use of energy efficient appliances. This can be implemented by introduction of a “National programme for women by women on energy conservation, energy safety measures to be implemented at the local level”.

2.2 Provide special trainings and special fellowships for Women in various institutions/Universities for making a cadre of energy professionals

Education and training of women is needed to increase their role in energy policy and planning and hence special training programmes/scholarship programmes for women are needed. Women in India do not constitute a homogenous group and in order to have women voices at the different as a special programmes at different levels are required. The need is to have a balanced representation of men and women at every level. There should be different schemes and polices by way of scholarship, fellowship etc to create a cadre of gender sensitive energy professionals capable of developing and delivering gender sensitive energy policies.

2.3 Capacity building and assistance to manage energy programs, policy, and projects in integrating a gender perspective

Providing assistance to various energy programs and projects that have a gender perspective for promoting capacity building. The women, who are toiling to gather fuelwood, can be brought together to collectively tend fuel wood or oil plantation. Their role as energy manager needs to be strengthened and not taken away. They can also manage LPG and kerosene distribution. In the USA user co-operative had 3 women out of 8 members in the early thirties.

2.4 To widen access to rural electrification, including decentralized programs

Role of women should be ensured in rural electrification programs during their electrification derive. Electrification helps in various livelihood activities and small-scale industries hence access to electrification in rural areas is also one of the important steps. Several “best practices” studies suggest a number of effective policies for improving energy access by the poor. The women can also manage checking of meters, distribution and collection of electricity bills. It requires capacity building and awareness creation at the local level. As many of the State electricity boards are facing the problem of revenue collection and running in losses.
2.5 Launching mass awareness programmes in the sectors of energy and water
Along with energy, clean water needs of poor for drinking and other purposes are also essential. Mass awareness programs should be launched to promote the effective utilization and management of basic needs such as water and energy.

3. Stakeholder involvement

3.1 Women manage energy and hence require support
At present women are managing 1/3rd of the energy systems of India by gathering fuels. Hence, they need to be supported. By way of providing assistance to various energy programs and projects that have a gender perspective for promoting capacity building.

3.2 Political Will:
Special commitments for rural electrification options are needed that can also provide better opportunities for income generation through agriculture and small-scale industries (SSI). “Indhan, pani, bijlee should be given priority instead of only “electricity – water”.

3.3 Policy needs to go beyond cooking energy and emphasis should be in providing energy for meeting the other energy uses:
Women energy needs attention does not confine to meeting household energy only but also for meeting the strategic and productive energy needs. The productive activities in which women engage also use energy, usually human and often biomass energy i.e:
- To provide Basic needs- drinking water, lighting, self fulfilment and entitlement
- Exposure to media
- Security - street lighting
- Productivity- in business/livelihoods
- Energy- Dung cakes, Charcoal/oilseeds etc
Unfortunately, gender issues are thought to be limited to cooking fuels. The focus should be expanded to empowerment and enlighten that comes from participating, self-fulfilling and generating livelihood activities.

3.4 Use of media and electronic communication to educate the public and raise awareness
Media is a very powerful tool that can be used to educate the public and raise awareness regarding proper management of existing energy sources and various alternative energy sources.
4. Research needs

4.1 Building up a body of evidence and experience (conceptual, methodological, and case studies) linking attention to gender in energy policy and projects to equitable, efficient, and sustainable outcomes in energy and development.

Various case studies that highlight the drudgery of women, energy-gender nexus and valuate the time loss can be undertaken to highlight the importance of gender in energy policy and also build a body of evidence based on which the tenderized energy policy can be advocated.

4.2 Dissemination activities/information sharing national, international experiences

The various research experiences / information gained by national and international experiences to be shared by dissemination activities like training programs, consultation workshops, conferences etc.

4.3 Developing various biofuels species and cultivation practices and appliances (stoves) for women by women.

5. Health issues

In order to combat health issues arising from the use of biofuels the following steps should be taken:

- Health centers should be sensitized with these issues.
- Spot and correct respiratory diseases from indoor air pollution.
- The daily drudgery of women should be reduced; only then women can spend time on generating income.
- The effect of different diseases on women and men should be taken into account.
- The impact of aggravating conditions of agricultural production on well being of men and women and their access to work must also be taken into account.

CONCLUSION:

Although until recently gender issues were not considered particularly relevant to the establishment of energy policies and programmers, it is now apparent that societal pressures for greater gender equality and for more sustainable and effective energy systems can be mutually reinforcing. Energy interventions can become more effective when they are responsive to the needs of different users in differing conditions. Reaching this goal will
require changes in how energy programmers are formulated and implemented, in how energy
decisions are made, and in who is involved in making those decisions. A more participatory
approach to energy policy decisions will allow both men and women to be engaged in
defining energy problems and in implementing appropriate solutions. The nation has raced into
21st century with the women left behind in the 19th century, hence, special attention should be
given to the situation of women because they are more affected than men by negative
consequences of using traditional energy sources. Greater political will is needed to address
the issues of water, energy, sanitation and literacy. Much more difficult goals like
electrification, space, ICT revolution have been achieved but the basic problems of water and
fuel for the rural poor, especially women are still not addressed. Women manage one third of
the energy system. That role should continue by empowering them with investment,
management, technology and training. Their role as energy provider can be transformed if
they can manage fuel wood or oil seed plantations, dispense kerosene or LPG, assemble solar
panels and build cook stoves to brick kilns. Women can play an important role in the adoption of
new sustainable technologies, but only if they have the opportunities and resources necessary
to allow them to participate in the formulation and implementation of energy policies.
The New Delhi based **Integrated Research and Action for Development (IRADe)** was established in 2002 by eminent persons in India. The institute was set up as a fully autonomous advanced research institute with the idea that the development process that increases the welfare of all its citizens, especially the poor and the disadvantaged, requires innovation and change and new thinking, activities and approaches. It requires perspectives from several disciplines. It is a multistakeholder process including government, NGOs, industry, corporations, academic and financial institutions. Thus IRADe involves them as partners at all stages of the research process.

**The objectives of IRADe are:**

- To develop understanding that integrates multi-stakeholder perspectives concerning issues of development.
- To promote a wider consensus through research and analysis on effective policies among stakeholders and policy makers.
- To develop capacities among professionals for multi-disciplinary multi-stakeholder policy analysis.
- To promote ideas and initiatives for inclusive development at the local and global levels.
- To provide research support to developing countries to negotiate international agreements better.

The focal areas of the institute are:

- Energy systems, policy and planning
- Natural resources and environment management
- Infrastructure, industry and institutions
- Rural and urban areas
- Global and local issues especially poverty alleviation programmes
- Climate change and Clean Development Mechanism

In a short span of time, IRADe has started working with Government, non–government and multilateral agencies such as Stanford University – USA, Self Employed Women’s Association, Winrock International – India, Energia International – Netherlands, Ministry of Environment and Forests (MOEF), Government of India, South Asia Network of Economic Institutes (SANEI), Central Statistical Organisation, United Nations Environment Programme (UNEP) – Geneva, Petroleum Federation of India (Petrofed India) etc. as well as private sector such as Pricewaterhouse Coopers (PwC) – New Delhi and Reliance Industries Ltd.