



ENERGIA

International Network on
Gender and Sustainable Energy

GENDER PERSPECTIVES ON ENERGY FOR CSD-9

Draft position paper including recommendations proposed by the ENERGIA
Support Group and the CSD NGO Women's Caucus *

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1 Background

Given that a broad consensus exists that:

- Empowering women and improving their status are essential to realizing the full potential of economic, political and social development.
- Empowering women is an important equity and human rights goal in itself.

Yet given continuing gender disparities despite economic growth highlighted at the Beijing conference in 1995 and at Beijing+5 in June 2000, such as

- 70% of the approximately 1.3 billion people living in poverty are women,
- women have access to a disproportionately small share of credit from formal banking institutions, e.g. only about 10% in Africa,
- women in general receive much lower average wages than men,
- globally, women occupy only 10% of all parliamentary seats and only 6% of cabinet positions,
- throughout the world women face unequal treatment under the law, and often face violence and abuse as both girls and women.

Taking into account the recommendations of recent United Nations conventions and conferences, including

- the UNCED in Rio in 1992, and Rio+5 in 1997, in which Agenda 21 included the advancement of women as a cross-cutting issue and four major energy program areas in support of sustainable development were identified (promoting the energy

transition, increasing energy efficiency, promoting renewable energy sources, and promoting sustainable transport systems),

- the Beijing Conference on Women in 1995 and Beijing+5 in 2000 in New York, where the Platform for Action related energy to women's health, environmental and productive roles and concerns,
- the World Summit for Social Development in Copenhagen in 1995 and Copenhagen+5 in 2000 in Geneva, which placed energy concerns within a sustainable livelihoods framework.

Taking note of women's key roles and interests in energy consumption and often production, both in the North and the South, for example

- as the principal consumers and users of household energy and transport, a major portion of total energy use, and as purchasers of stoves, automobiles, and other energy-using appliances as well as the selectors of cooking fuels,
- as the main actors in determining their household's direct and indirect energy consumption - use of heating and air conditioning, hot water and electrical appliances; the choice of time of use (and therefore peak use); household purchases, which may be more or less energy intensively produced; and the use of household transport,
- as victims of environmental pollution due to energy use, particularly vulnerable due to their reproductive roles and household responsibility for cooking; and as victims of high energy prices and expenditures, especially female-headed households that make up a large portion of the poor:
 - Women in the North have been particular victims of exposure to nuclear radiation and, as a consequence of their exposure, suffer higher levels of stress than men following radiation incidents.
 - Women in the South have been victims of unregulated pollution caused by old, improperly maintained equipment exuding pollutants into the air.
- as more frequent users of public transport and pedestrian walkways than men,
- as the primary educators and formers of their children's future energy conservation and consumption habits,
- as effective activists on energy questions in health, environmental, children's and peace-related organisations and issues, ranging from community education for recycling, to lobbying for sustainable energy, to anti-nuclear protests.

2 Southern Perspective

Bearing in mind that, in developing countries, women have an especially critical interest in improved access to sustainable energy supplies because

- Rural women (and their children) are the primary collectors of wood and residue fuels, which account for 80% of all household energy use in many developing countries. Based on FAO estimates, the proportions of rural women affected by

fuelwood scarcity range from 60% in Africa, to nearly 80% in Asia, and nearly 40% in Latin America. Time spent in fuel collection in fuel-scarce areas can range from 1 to 5 hours per household per day.

- The real rural energy crisis is rural women's time, with women working longer work days than men in providing human energy for survival activities such as fuel and water carrying, cooking, food processing, transport, agriculture, and small enterprises, non-monetised work which is largely invisible in national energy accounts and labour force statistics.
- Many income activities of women in the informal sector - often critical to family economic survival - are fuel intensive, and the viability of these activities is affected by energy prices and availability.
- Energy scarcity impinges on the provision of other basic services, such as water, health, and education. For example, the proportions of rural women affected by water scarcity are estimated to be 55% in Africa, 32% in Asia, and 45% in Latin America, with the median time for collecting water in the dry season about 1.6 hours per day.
- More than half the world's households cook daily with wood, crop residues, dung and untreated coal, as a result of which women and children have the highest exposures to indoor air pollution, linked to acute respiratory infections, chronic obstructive lung diseases, low birth weights, lung cancer and eye problems.
- Other occupational health hazards for women involved in energy use and production include bone fractures, back disorders and miscarriages due to fuelwood load carrying; and exposure to burns and smoke in informal sector enterprises.
- Physical and psychological violence against women has been reported: rapes while gathering fuelwood around refugee camps in Somalia, undergoing sniper fire to gather fuel in Sarejevo, and bride suicides related to women's inability to meet their family's wood fuel needs in India.
- There are few women who have access to the education and support systems necessary to negotiate careers in the energy sector, hindering the development of energy policies and technologies better suited to women's needs and wishes.

Noting with satisfaction the considerable strides made in the past five years in advancing gender and sustainable energy as an issue in the South: documenting women's roles in the energy sector, involving women in energy projects and planning, and placing women's concerns on the agenda of international energy programmes and meetings, such as

- The UNDP Energy and Atmosphere Program "Energy and Women: Generating Opportunities for Development" project together with regional and country offices in Africa, and including a Southern African regional workshop in 1999 and case studies;
- The World Bank Energy Sector Management Program (ESMAP) "Gender Facility" to support innovative approaches and learning and develop and implement a strategy for gender mainstreaming in the energy sector;
- Seminars, workshops and consultations for awareness and capacity-building in Southeast Asian countries and China on gender and wood energy, coordinated by the (Asia) Regional Wood Energy Development Program (RWEDP) of FAO;

- Symposia on women and sustainable energy at major international energy meetings such as World Renewable Energy Congresses since 1996, and at Village Power '98 and planned at Village Power 2000;
- A workshop on women and energy as part of an African Energy Ministers' meeting in South Africa in December 2000;
- The UNIFEM Energy and Environment Technology Sourcebooks Series, including to date Water Supply, Rural Transport, Electricity in Households and Micro-Enterprises, and Energy Efficiency for Small and Medium Scale Enterprises.

Taking note of some specific examples of successful approaches to increasing sustainable energy access for women in the South, including

- Financing energy services and income-generation for the poor, including women - the ENSIGN project of the Asia/Pacific Development Centre and UNDP, combines micro-credit loans for energy services and for corresponding income-generating activities, co-financed by a revolving fund and national financing institutions such as the Self-Employed Women's Association (SEWA) Bank, with average income growth of 66% in the participating households.
- In Nepal, enhancing rural livelihoods through decentralized and people-centered development based on the promotion of rural energy technologies, especially micro-hydro as an entry point, has been the focus of the UNDP Rural Energy Development (REDP) Program in Nepal, with a community mobilization process designed to promote gender development for equity and equal access.
- Small engines to which a variety of end use equipment can be attached (mills, alternators, oil presses, etc.) are being promoted through women's associations in Mali as a rural enterprise, to address rural women's need both for income and for time-saving, and especially to help solve bottlenecks in time and energy intensive multi-tasking activities such as post-harvest food processing (grinding, dehusking, oil extraction) in which rural women presently use only their own labour.
- The Vietnam Women's Union, a nationwide social service organisation, has been active in the promotion of solar home systems, supervising motivators who sign up households and administering a revolving credit fund, to meet the electricity needs of the 70-80% of rural households without electricity.
- Improved cooking stove projects have saved woodfuel, women's time, and costs as well as their health in several countries in Africa. In Kenya, e.g., a cost-benefit study showed that users saved between 3 and 20 hours weekly on gathering fuelwood, or, if purchased, 40-50% of the cost of fuelwood, while reducing smoke emissions by a factor of 2.6. Household energy programs also produced additional income opportunities for craftspeople and strengthened the confidence and self-help potential in women's organisations.
- In 13 village solar pumping projects in Brazil, women's participation in the maintenance of wells was integrated with education on health matters relating to drinking water, childcare, etc., and proved a key factor in the trouble-free operation of the solar pumps and the effective enhancement of public health in the villages where the pumps were installed.

- Women in the Solomon Islands have been addressing their community needs by using electricity from hydropower. The women recognized the value of electricity in providing amenities for young people which would encourage them to stay in the villages and so retain the social fabric and economic stability of the community.

3 Northern Perspective

Bearing in mind that in the North, there is a growing divide between rich and poor and that this has a distinct gender perspective: 15.4% of women and 12% of men are below the poverty line in the USA. Poor women are disproportionately found as heads of single parent families and, due to their greater longevity than men, of pensionable age. Since there are more women than men below the poverty line, more women will live in energy poverty.

Taking into account that Northern climates create the need for space heating for significant parts of the year:

- Poor people suffer from fuel poverty, defined as spending more than 20% of household income on fuel. In 1991, in the UK, 7 million households (36% of total) suffered from fuel poverty.
- Poor people live in housing with poor insulation and frequently use second-hand equipment with poor energy efficiency. Both factors contribute to the high energy costs of poor people.
- Poor people use electricity and coal for heating and cooking, which, combined with lower efficiency equipment, disproportionately compared to higher income groups contributes to global warming.
- Young children and older people have special heating requirements to reduce their vulnerability to illness.

Bearing in mind that in the North, women have shown a deep concern with energy choices yet are under-represented in the sector:

- Women are considered to be more favourable to energy conservation and renewable energy. In Sweden, in the late 1990's, 80% of young women were found to be against the long-term use of nuclear power.
- Modern forms of energy have been responsible for reducing the drudgery of and time taken for housework, enabling women to participate in activities outside of the household.
- Despite the increased access by women to science and engineering education, women still make up less than half of students enrolled on energy courses.
- The energy industry is perceived as a male preserve. In Western Europe, more than 80% of employees in the electricity companies are men and more than 90% of all managers are men. In Australia, women make up 20% of the work force in the Electricity, Gas and Water sector. Women occupy less than 5% of technical posts within the energy sector.

Taking note of some specific examples of successful initiatives to increase women's experience and skills in the energy sector in the North, such as

- Women in the North are establishing renewable energy co-operatives and businesses: For example, in Germany, the Windfang women's wind energy cooperative, with more than 200 members, profitably operates more than 1600 kW of installed capacity wind turbines in Northern Germany, balancing profitability, eco-technology, and the development of women's technical capabilities by increasing their work experience in energy projects. Women have also been able to contribute to the financing of the co-operative and so enable the development of energy resources that meet their ethical values.
- Energy companies are beginning to recognize the particular beneficial role that women bring to the workplace, that their skills, such as communicative abilities, are complementary to men's which leads to a more balanced and efficient organisation.
- To overcome labour market segregation in the energy sector, a network of electricity utilities and trade unions in Europe has produced a guideline "Equal Opportunities in the Energy Sector". In Canada, the Oil and Gas Sector is promoting the participation of women in non-traditional areas through diversity management, which recognises the contributions people can make as capable individuals, rather than as members of designated groups.
- Training in a supportive environment increases women's skills and confidence with technology and enables them to enter non-traditional areas. Women from the USA and Canada have increased their solar energy capabilities through the Women's Photovoltaics workshop run by Solar Energy International.

Taking note that in some areas of the North that are presently war-torn, or that are recovering from strife:

- Women and the elderly and children they care for are particularly affected by lack of heating and cooking fuel, especially in severe wintertime. This is particularly true in Bosnia, Kosovo, Yugoslavia, Chechnya.

Noting with satisfaction, some of the actions to redress women's influence on energy agendas in the North:

- The ENEQO Project to promote Equal Opportunities within the Energy Sector funded by the Commission of the European Communities' Community Action Programme on Equal Opportunities for Women and Men.
- The initiative by the World Energy Council to set up a data base of women professionals in the energy sector and the establishment of a Global Women's Energy Network (GWEN).
- The research study by the Commission of the European Communities in 2000 to evaluate to what extent its energy research programme is research **by** women, **for** women and **on** women with a view to ensuring gender equity in terms of women participating in research and research that addresses women's concerns.
- Broader initiatives by governments, for example in the USA, Canada, UK, EU and Sweden, to overcome labour market segregation by gender and to encourage the

participation of women in Science and Engineering, such as gender disaggregated statistics, mentoring programmes and childcare support.

4 Networks and Partnerships

Due to the under-representation of women, women in the energy sector, as any other minority members, can often feel isolated. Networking has proven valuable to women in the energy sector, both in the North and in the South. Often, networks include working with men who are interested in gender issues. For example:

- The ENERGIA International Network on Gender and Energy, based in The Netherlands since 1995, which has acted as an international catalyst and focal point, including publishing ENERGIA News, a quarterly newsletter and encouraging the establishment of national and regional networks;
- The Red Mesoamericana de Género en Energía Sostenible (GENES), the Meso American Network on Gender and Sustainable Energy established in 1998 with support from USAID and Winrock International, in Fundacion Solar in Guatemala, to promote gender-focused energy development and stimulate energy projects that contribute to equitable social and economic development. More than 50 organizations from the region, ranging from women's cooperatives to agricultural producer associations and national energy agencies, are represented by focal points in seven Meso American countries (Mexico, Guatemala, El Salvador, Panama, Costa Rica, Nicaragua, and Honduras);
- In Africa, national and sub-regional networks on gender and energy are forming to stimulate integrated gender-energy-development activities, based on an Action Plan developed at a regional Africa workshop in partnership with ENERGIA, the Environmental Liaison Centre International (ELCI), Winrock International, and UNIFEM in March 2000;
- In South Africa,
 - the Woman's Energy Group (WEG) was established in 1993 in order to promote science and technology as careers for women and to put these at the service of poor women. WEG contributed to putting women and gender issues into the new National Energy Policy.
 - Men in the Department of Minerals and Energy have signed a unique Pledge to end discrimination at home and in the workplace as a first step towards eliminating gender inequities in the sector.
- The All-India Women's Conference has worked with rural women's organisations throughout India to improve energy supplies, and has represented women in high-level energy meetings and policy boards.
- Women in Germany have set up "Energiefrauen" (Women in Energy), a national informal network of more than 150 women students and professionals.
- In Colorado USA, women energy professionals have formed the Helen Reddy Kilowatt Network for information exchange.

- Professional capacities and leadership abilities of women working in the oil and gas sector in Pakistan have been enhanced and gender equity addressed with support from the Canadian International Development Agency (CIDA) through the Pakistan Petroleum Women's Network.
- The Plutonium Free Future Women's Network (Rainbow Serpent), based in Japan, has published the "Women's Handbook on Safe Energy" and has campaigned to demand that governments shift their investments and subsidies away from nuclear and fossil fuels and towards safe, renewable energy systems.

5 Recommendations

5.1 General Recommendations

Emphasising the goal of increasing sustainable energy access for women through both empowering women and engendering energy, the following recommendations for study and action are made:

5.1.1 Require disaggregation of information by gender at all levels in the energy sector (target groups, beneficiaries, project staff, planners, policy, etc.) and for all issues, e.g. needs, preferences, decision-making, access to credit and information in market surveys, economic and health benefits and impacts of pricing policies and different energy technologies, development assistance project portfolios, etc. This would improve the data on which projects, planning and policies are based, and very likely the benefits to women.

5.1.2 Prioritise the cooking energy crisis and women's health in developing countries. Any energy assistance aimed at improving women's access to energy must include cooking:

- Cooking is poor women's main energy use, so an energy strategy for poor women would have a large component of traditional fuel use improvement, whether improved biomass stoves and fuels or better management of biomass supplies.
- This could improve family health, both by reducing smoke and indoor air pollution, and by decreasing women's and children's workload in woodfuel collection and cleaning.
- It might also include measures to help poor women to shift to safer, cleaner and more efficient modern fuels for cooking, such as kerosene or natural gas, or even solar cookers, where pricing policies and availability of both stoves and fuels would be a factor.

5.1.3 Specifically address poor women's development needs for labour-saving, for time-saving, for improved health, for security, and for income in rural energy projects and technology research.

- An energy strategy for poor women should help them to reduce their heavy workload in water carrying, food processing and transport, through improved water pumping and purification, through grain mills or improved transport

facilities, or through promotion of the notion of men and women sharing responsibilities.

- Improved home and street lighting and rural electrification might come next in priority for poor women.
- Using electricity to improve health and education facilities and services would be of interest to them.

5.1.4 Adapt and apply specific, proven "best practice" development sector approaches to overcome institutional factors such as women's lack of access to credit, extension, training and employment in the energy sector (which are also barriers to energy access by the poor generally) and to ensure that energy will be a means to development rather than an end. For example,

- micro-credit financing aimed at income-generation for the poor,
- participatory assessment methodologies, and
- integration of energy into other development sector projects such as health, water, forestry, food security, etc.

are proven approaches to benefiting women and the poor that can be applied in the energy sector; still others can be identified, adapted and applied.

5.1.5 Integrate energy access and finance for income-generation in a holistic approach offering a bundle of services to enable women to access improved energy, while at the same time enhancing women's entrepreneurial skills, self-respect and self-confidence.

- Any assistance in using energy services to earn income would be most welcomed by poor women, such as any opportunities for themselves to build, sell, maintain or repair energy technologies.
- Poor women could be energy entrepreneurs for improved technologies for households and small-scale industry, as has occurred in Mali.
- Women typically use additional income earned to purchase food, for school fees, and for other essentials for their families. In India for example, poor women with AIWC assistance are using micro-credit to make fuel briquettes from dried leaves and the income to build urgently need sanitary toilets.

5.1.6 Enable institutional representation of women in decision-making of organizations that affect women's vital energy interests. An energy strategy that focused on poor women's needs would provide opportunities for poor women's organisations and views to be represented as stakeholders in policy decisions on macro energy planning and pricing. Defining the membership of energy organizations in a way, which enables balanced participation by gender in their organizational processes would encourage gender equity in decision-making.

5.1.7 Support capacity building of women and men involved in energy to enable the development of a critical mass of women and men with the capabilities to change the policies, programmes and practices that affect women and their energy choices. Capacity building needs to be tailor made for specific groups, eg:

- Training courses for male energy policy makers, planners and development workers, to enable them to take a more gender sensitive approach.
- Workshops for grassroots women to develop skills for articulate their own needs and interests, and for development workers to understand and be able to work with these.
- Improved access for women to higher education to increase the number of women professionals working in the energy sector.
- Sensitisation of employers and employees of the benefits of women as technical professionals in the energy sector.

5.1.8 Address issues of energy insufficiency in war-torn countries and in refugee camps, where the situation of women and children is especially vulnerable, to enable critical availability to prevent or mitigate hardship, by all means necessary ranging from legal to institutional and operational, taking into account that these matters are crucial both in tropical and in colder climates.

5.1.9 Create more knowledge, analysis and understanding of gender and energy linkages and needs in the North, and how these can better link and interact with international, governmental and major group level to improve women's access to safe, affordable and convenient energy in both the North and the South.

5.1.10 Provide technical, catalytic, moral, financial and political support to efforts to promote joint South-South and North-South initiatives between energy sector and development sector professionals, organisations and projects, through capacity building, workshops, electronic communications, advocacy, research and networking at the local, national, regional and international levels.

5.2 Specific Recommendations

5.2.1 International level

a) The Commission on Sustainable Development (CSD) should:

- Establish an ongoing process on gender and energy, hosted by an appropriate organisation such as World Bank or UNDP, to facilitate a multi-stakeholder process on gender and sustainable energy. For example, as there are numerous programmes and initiatives which have been established over the last years, an inter-agency working group meeting twice yearly could ensure better coordination of ongoing activities, enhance links with other development sectors and facilitate exchange between various agencies.
- Address urgently the priority issues listed under "General Recommendations" above in this intergovernmental mechanism, which should include stakeholders from all levels. A first meeting should agree on a program of work between now and 2002. Results of increased coordination and benefits of exchange should be presented to Earth Summit 2002.

- In the review of implementation of Agenda 21, CSD-10 should address, at a minimum, to ensure whether a gender perspective has been included:
 - gender disaggregation at all levels, including budget allocations for the following areas;
 - attention to cooking energy and women's health needs;
 - attention to women's development needs for labour- and time-saving, security, and income;
 - capacity building of women and men enhancing their capabilities to improve women's access to energy;
 - attention to the efficacy of the increasing numbers of renewable installations in developing countries;
 - attention to sustainability of public transport systems; and
 - support to networks and partnerships on women and energy.
- b) International agencies** (e.g. UNDP, UNEP, GEF, Convention Secretariats, World Bank Climate Change Convention process)
 - International agencies should, in their work on energy related issues and projects, review the available data and knowledge on relevant gender aspects. Gender impact assessment of development programmes and projects should be institutionalised. Relevant stakeholders should be part of review and re-design efforts, through transparent consultation mechanisms.
- c) Donor governments and agencies should**
 - Support the adaptation and application of proven methodologies for increasing attention to women's needs in energy projects and programs, such as gender training for all stakeholders, gender analysis, participatory assessment, integration with other development sectors, and using indigenous knowledge in the design of solutions.
 - When designing support projects, work with women's stakeholder groups in partnership, giving priority to organizations that are directly owned and managed by poor and women stakeholders.
 - Uphold gender equity as a principle within their own organisations.

5.2.2 National level

GOVERNMENTS should

- Support mainstreaming women, balanced gender development, and deliberately raising the status of women in all social, economic and political aspects of development, including the energy sector. Of particular concern is policy and legislation concerning women's equal rights to inheritance and property since this affects their ability to make strategic choices about energy.

- Set an example of gender equity and use of sustainable energy in their own organizations, e.g. passive solar construction.
- Collect gender disaggregated data to provide adequate and accessible information on gender and energy for stakeholders at all levels.
- Promote partnerships among governmental and non-governmental organisations as well as with the private sector, to address women's sustainable energy needs.
- Give priority to energy development projects that directly address poverty alleviation and gender equity in their design, and ensure appropriate collaboration among energy and other development sector ministries and departments, such as those responsible for agriculture, health, water, industry, and women, among others.
- When designing projects, work with women's stakeholder groups in partnership, giving priority to organizations that are directly owned and managed by poor and women stakeholders.
- Include women's organisations and groups that are addressing women's energy needs in stakeholder consultations on macro-economic energy policy issues such as energy pricing, availability, major investments, and budget allocations. Include or produce a women's energy budget.
- Encourage women entrepreneurs to enter the energy sector.

5.2.3 Major Groups Agenda 21

a) Business and Industry

- Recognizing that many currently available energy technologies do not address women's needs, undertake to research, develop and market energy technologies that meet women's needs for safe, convenient, efficient cooking energy, food processing and labour-saving, as well as their health and educational needs.
- Focus on women, including poor women, as a target group and as participants in technology development, training, capacity-building, extension, credit and marketing services.
- Include a strong social development component in energy development investment.
- Provide opportunities for women professionals to participate in the energy sector, by improving their qualifications, examining recruitment and working practices which act as barriers to their employment, supporting women in the workplace, and employing their skills to making appropriate use of them to reach target markets of women.
- Develop innovative approaches, in consultation with employees and/or trade unions, to help challenge and change negative and stereotypical attitudes and assumptions.

- Provide bursaries and role models of women professionals, and work with educational institutions to stimulate girls to choose technical and natural sciences with the view to following careers in the energy sector.
- Extend social responsibility programs to include micro-financing for projects focused on efficient energy use.

b) Workers and Trade Unions

- Promote gender equality and focus in their own organisations through employment of women professionals and a gender focal point with a clear mandate and support from top management
- Ensure that international energy service companies introduce gender sensitive employment measures throughout.
- Advocate for the political will and resources to support integrated and holistic energy policies which take into account women's needs and employment practices which benefit women and men equally.
- Encourage and support networking amongst women members for information exchange and skills building.
- Through training challenge and change negative and stereotypical attitudes and assumptions and sensitise members to the need for equal opportunities for women and men and the positive benefits of women bring to the work place.
- Carry out research which examines recruitment and working practices to identify best practice for women friendly employment.

c) Non-governmental Organisations (NGOs)

- Promote gender equality and focus in their own organisations through employment of women professionals and a gender focal point.
- Advocate for the political will and resources to support integrated and holistic energy policies which take into account women's needs.
- Develop innovative models as examples of effective approaches to increasing women's access to energy.
- Support women's access to training with energy technologies.

d) Women

- Advocate for the political will and resources to support integrated and holistic energy policies which take into account women's needs. Share their expertise regarding successful mechanisms for the advancement of women with all stakeholders.
- Educate themselves and their members on sustainable energy issues and concerns relevant to women's needs.

- Collaborate with energy and other organisations in improving access to sustainable energy for both women and men.
- Participate as stakeholders in energy policy and planning discussions.
- Gain technical education to increase access to women friendly energy technologies.
- Participate as stakeholders in energy service companies/co-operatives.

e) Children and Youth

- Provide education and capacity-building for children and youth on sustainable energy technologies and use, including gender perspectives.
- Involve children and youth in local and national planning processes.
- Encourage their schools and education centres to use renewable energy technologies.
- Inform their parents about the options for energy efficiency at home and in the work place.
- All schools should offer equal opportunities to boys and girls to enter the energy sector.

f) Farmers

- Involve indigenous farmer organizations (such as farmer-managed irrigation systems in Nepal), as the strategic organizations in rural societies, in the promotion and application of clean energy to raise the quality of life of women in the rural areas, e.g. in planning, capacity building and energy-related education.
- Institutionalise, through legislation and policy, land ownership of married women and single mothers, rather than limiting such ownership to male family members.
- Promote involvement of women in farm planning and management of farms through family-managed farming systems, and ensure that women farmers are represented as equal stakeholders on decision-making structures of farmers' organizations, related NGOs and local authorities so that productive and reproductive energy needs are included in rural energy planning.
- Promote the development of labour saving technologies for women's agricultural activities, ergonomically designed for women's bodies.
- Ensure that women have access to information about and training with new energy technologies for use in the agriculture sector.

g) Science and Technology

- Remove structural barriers to women researchers recruitment, retention and promotion

- Implement research where women and energy will be primary beneficiaries and advocate for research funds to be made available.
- Promote a gender balance in scientific decision-making, institutes of higher education and research institutions.

h) Indigenous Peoples

- Local knowledge of environmental systems and structures should be systematically considered and incorporated into energy planning.
- In particular, planning and implementation of large-scale hydro installations should ensure that indigenous people's participation and rights are respected in resettlement plans and access to electricity generated, taking into account women's special needs and concerns.

i) Local Authorities

- Practice energy efficiency and sustainable energy in their own procurement and operations policies.
- Build capacity to encourage an understanding of and commitment to equity in the energy sector and particularly in addressing delivery to women as primary domestic users
- Create urban planning that responds to women's needs of mobility and communication needs, in particular an effective, affordable, accessible and environmentally sound public transport and communication systems which reduce use of motor vehicles with associated energy generated pollution.
- Introduce building standards that create living environments with minimal energy inputs for comfort.

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