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- I. Introduction
- II. Energy for Sustainable Development and Gender in Developing Countries
- III. Energy for Sustainable Development and Gender in Industrialised Countries ...
- IV. Gender Aspects of Climate Change
- V. Conclusion
- VI. Annexes

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I. INTRODUCTION

1. The lack of access to modern energy and the effects of climate change are interlinked and the impacts on women's lives, both in developing and industrialized countries, reflect the gender inequalities and inequities prevailing in the social, economic and political arenas.

2. More than two billion people in developing countries, particularly in rural areas, use traditional fuels, such as wood, charcoal, and dung for cooking, and lack basic modern energy services. The lack of access to affordable energy services is a serious barrier to sustainable livelihoods and emergence from poverty. Seventy percent of the 1.3 billion people in developing countries living on less than one dollar a day are women, therefore it follows that energy poverty is a problem that has a disproportionate effect on women.

3. The North-South dimension of the problem must also be considered, especially in the light of climate change mitigation and adaptation policies and energy consumption patterns. As highlighted by Agenda 21, current levels of energy consumption and production are not sustainable, especially if demand continues to increase. Over-consumption of energy in industrialised countries is accompanied by lack of access to energy in developing countries, which affects their capacity to meet their basic needs and combat poverty. The linkages between gender equality and energy consumption and production also have consequences in terms of mitigation responses to climate change.

Addressing the gender aspects of energy for sustainable development and climate change will ensure a more just political response and help to formulate more appropriate poverty reduction policies and strategies, since women are disproportionately represented among the poorest of the poor.

4. In 1992 the UN Conference on Environment and Development produced Agenda 21 recognized the advancement of women as an essential element of sustainable development. The Fourth World Conference on Women in 1995 adopted the Beijing Platform for Action in which governments agreed to support women's equal access to sustainable and affordable energy technologies and to use participatory needs assessments to design national energy plans. In 2001, the Ninth Session of the UN Commission on Sustainable Development (CSD-9) urged governments to address the health and safety concerns of women and children in rural areas, including the impacts of carrying fuel wood over long distances and exposure to the smoke from open fires. CSD-9 also recommended international cooperation to promote women's equal access and opportunities to energy and their greater involvement in energy policy decision-making processes.

5. Other UN conferences have also acknowledged the importance of adopting a gender specific approach to implementing policies, and gender equality has been identified as one of the Millennium Development Goals and designated as a crosscutting theme for work of the Commission on Sustainable Development. Yet when it comes to energy, climate change, and environmental protection, UN agencies, national governments, international organisations and

non-government groups still fail to integrate gender perspectives adequately into policies and actions.

II ENERGY FOR SUSTAINABLE DEVELOPMENT AND GENDER IN DEVELOPING COUNTRIES

6. Affordable, locally appropriate and environmentally sustainable sources of energy are needed everywhere for social and economic development. In developing countries especially in rural areas and ‘informal’ urban settlements, lack of energy is a crucial factor that limits people’s efforts to escape from poverty and expand their productive activities. To reach development objectives in such settings, including achievement of the Millennium Development Goals, emphasis must be placed on increasing access to sustainable and affordable energy sources.

A. The Issues At Stake

7. Although everyone needs energy, in many communities women suffer the most from ‘energy poverty’ because they are responsible for supplying their families with food, fuel, and water, often without the benefit of basic modern infrastructure. Lack of energy for household needs and small-scale enterprises limits women’s ability to take care of their families and themselves, pursue higher levels of education, earn income, and participate in social and community affairs.

8. Without access to convenient, affordable fuels for cooking and heating, women have to spend large amounts of time and physical energy obtaining traditional fuels (such as wood, charcoal, dung and agricultural wastes) to heat water and cook meals. At the same time women in rural areas often have to grow and process their own food, and transport heavy loads, without any motorised equipment. If they do not have running water or motorised pumps for their homes, women also have to spend time each day gathering water from taps, or possibly polluted wells, rivers or springs. As wood and other traditional fuels become scarce due to over-harvesting, land clearing, armed conflicts or environmental degradation, women may have to travel longer distances to find fuel. While women are searching for fuel—especially those forced to seek shelter in refugee camps—they face risks of assault and violence, as well as injury due to dangerous terrain, snakes and wild animals.

9. Indoor air pollution is a major problem. Working over indoor fires exposes women to smoky conditions that cause respiratory and other illnesses. In low-income homes, especially in rural areas and ‘informal’ urban settlements, women often spend many hours a day near an open fire cooking meals or, in cold months, tending it for warmth. As a result, they are exposed to harmful levels of gases, particles, and dangerous compounds, such as carbon monoxide, benzene and formaldehyde. Indoor air pollution is responsible for more than 1.6 million deaths per year due to pneumonia, chronic respiratory disease and lung cancer. Other diseases associated with indoor air pollution include asthma, bronchitis, tuberculosis, cataracts, low birth weight and heart disease.

10. The particular needs of women with respect to improved access to energy are rarely taken into account in national policies and projects. Energy agencies tend to focus primarily on increasing fossil fuel supplies and expanding electrical distribution grids for industrial and urban expansion. While many energy managers are male engineers with primarily technical expertise, a transition to more sustainable energy sources will require decision-makers to also consider social concerns, including the gender-differentiated needs and impacts of proposed sustainable energy initiatives.

11. Relatively simple changes—like gathering data from both men and women—provide crucial evidence of how a particular energy policy might impact men and women differently. More appropriate measures, based on the insights and experiences of all those most directly involved, can then be drawn up and put in place to ensure that the project reflects the genuine needs and concerns of all the prospective beneficiaries.

B. Women's Energy Needs

12. Women's energy needs are not necessarily different from men's energy needs. However, where social traditions dictate that men and women have distinct roles and responsibilities based on their gender, inattention to these differences can lead to policies and projects that do not improve the lives of women (especially those in poor communities) and may even make their lives more difficult by reinforcing women's low status, economic disadvantages, poor health and lack of power. Energy priorities identified by women include:

i. Clean fuels and equipment for cooking, heating and productive uses—Since in many cultures women are responsible for preparing food, there is much emphasis on the need for clean-burning fuels that are affordable and convenient to obtain. In places where it was once relatively easy to get firewood or charcoal, traditional fuel sources may now be scarce due to environmental degradation, and women would particularly benefit from increased availability of modern fuels such as liquefied petroleum gas (LPG), or bio-fuels and biomass briquettes that can be produced locally from crops and agricultural residues available in rural areas. Improved stove technologies, with better efficiency and ventilation, as well as solar cookers, can also help reduce the dependency on unhealthy fuels and accompanying air pollution. Since many of women's business activities also involve cooking or heat processing, better fuels and thermal equipment can also advance women's economic opportunities.

ii. Motorised equipment for grinding, pumping, agriculture, and transportation—Women need alternatives that require less physical energy for planting, irrigating and harvesting crops, grinding grains and processing staple foods, hauling water for household, agricultural and commercial uses, and transporting goods and materials. Relief from these strenuous daily tasks would help women preserve their health, and allow them to pursue educational and economic opportunities and spend more time with their families. Water pumps and motorised equipment can be powered by electricity from the grid, solar, wind or hydro generators, by engines run on diesel fuel or modern bio-fuels, and by wind or water mills.

iii. Electricity for lights, appliances, communications and computers—Household lighting and communications equipment allows women, who often operate home-based enterprises compatible with household and care-taking responsibilities, to expand their reading, working and leisure time, improve their efficiency and knowledge base, and become more socially and politically engaged. Where grid connections are unavailable, electricity can be produced using decentralised generators running on diesel or bio-fuels, or wind, solar, and water power.

C. Major Challenges and Strategies

13. Building greater understanding of linkages between gender, energy and development—Because much of women’s daily labour is unpaid or outside the ‘formal’ economy, their contributions to social and economic development continue to be under-valued. Discrimination against women is directly related to their higher rates of poverty, ill health and illiteracy. Persuading decision-makers in developing countries to invest in basic energy infrastructure that would reduce women’s current burdens could bring substantial returns in terms of meeting the commitments of Agenda 21 and JPOI, as well as the Millennium Development Goals by increasing options for producing income and reducing poverty levels (MDG 1), providing more educational opportunities for women and girls (MDG 2) and greater empowerment of women (MDG 3), improving health and safety for women and their families (MDGs 4, 5 and 6), and ensuring more sustainable use of natural resources (MDG 7).

i. The main strategies employed by advocates include lobbying national governments, agencies and donors at international meetings, building public awareness with explanatory materials, toolkits, and training materials and producing research on best practices relating to integration of gender and energy concerns in sustainable energy policies, programmes and projects.

14. Enabling women's voices to be heard in decision-making—Women are currently under-represented in energy policy making positions, and generally still face constraints in decision-making process at all levels of social organisation whether it be in national and local government or in their homes and workplaces. Although having more women in positions of political power may not guarantee that the energy concerns of women living in poverty become national priorities, greater participation of women in the design and implementation of sustainable energy initiatives will increase the likelihood that women as well as men will benefit from them.

i. Helpful strategies for increasing women's involvement in decision-making include capacity building and technical training to enable their participation in the energy sector; promotion of participatory processes and needs assessments that facilitate the engagement of more women in national and local decisions about energy policies and projects and collection and analysis of gender-disaggregated data in all energy initiatives.

15. Addressing constraints affecting women's access to energy technologies—Sometimes new sources of income using energy-related equipment can help pay for improved energy services, but women tend to have difficulty earning enough income, raising capital, or obtaining credit for investing in such equipment. Furthermore women are often constrained by social and legal traditions that limit their options to own land or property, and that could be used as collateral to borrow money without a co-signer, or to obtain technical training.

i. Strategies to address these constraints include making available to women small-scale, affordable energy equipment and fuel containers, financing that is responsive to women's credit constraints, and technical training that is convenient and appropriate for women's schedules. Assuring women's land rights is also critical to improving their access to energy resources.

16. Empowering women to become energy entrepreneurs—Women and girls will need to gain greater confidence and expertise in business and technical matters in order to become more actively involved in social and economic development activities. Community projects that engage women in sustainable energy enterprises can provide training, experience and self-confidence, and encourage women to find solutions to meet their own energy technology needs. Such projects can also serve as starting points for women and girls to pursue higher levels of education in engineering and science so that they can become more active in the energy sector.

i. Strategies that can be employed include supporting women and women's groups undertaking sustainable energy enterprises and initiatives; providing training in business and production

skills; and encouraging women and girls to obtain advanced degrees in science and engineering.

D. Lessons Learned

17. Supportive government policies help promote the integration of gender concerns into energy policies, projects and planning processes—For example, in Uganda, the National Gender Policy was a significant factor in the gender-responsiveness of the Uganda Photovoltaic Pilot Project for Rural Electrification, which was designed to overcome financial, social and institutional barriers affecting access to solar technologies.¹

18. Energy programmes work best when they are included in integrated approaches to community development involving both women and men—The Rural Energy Development Programme in Nepal has used the installation of micro-hydro power systems as an entry point for community economic development, and ensured that both men and women participate in planning processes by establishing separate male and female committees that then work together on specific projects chosen by the community as a whole. The project's emphasis on

¹ “Uganda: Gender Responsive Planning for Access to Solar Technology Through Establishment of Appropriate Financing Mechanisms” Sengendo and Turyahikayo, 2002, www.energia.org/pubs/papers/wssd_africa_regpaper.pdf, and “Uganda Photovoltaic Project for Rural Electrification”, Sengendo, in *Generating Opportunities: Case Studies on Energy and Women*, UNDP, 2001, www.undp.org/energy or www.energia.org/pubs

including women and on gender and power relations has made it a model for gender sensitive energy planning.²

19. Participatory processes allow stakeholders to identify specific energy and development needs—In Bangladesh, for example, a project supporting the production of battery-operated lamps by rural women (called ‘Opportunity for Women in Renewable Energy Technology Utilization’) was designed with input from local women after surveys showed that they had identified household lighting as a priority in their remote off-grid location. The women learned to produce the lamps in a micro-enterprise manufacturing facility and distributed them through rural markets.³

20. Income-generating uses of energy technologies can help make energy services affordable to women, and increase their social and political status—The Mali Multifunctional Platform Project for village power has enabled women’s groups to use diesel generators to operate a variety of end use equipment, including grinding mills, oil pressers and battery chargers, and also to run lights and water pumps. By charging for these energy services, they have increased their own incomes, and gained respect for bringing significant benefits to their villages.⁴

² «Nepal Rural Micro Hydro Development Programme”, Rana-Dueba, in *Generating Opportunities: Case Studies on Energy and Women*, UNDP, 2001, www.undp.org/energy or www.energia.org/pubs

³ “Battery-Operated Lamps Produced by Rural Women”, Khan, in *Generating Opportunities: Case Studies on Energy and Women*, UNDP, 2001, in *Generating Opportunities: Case Studies on Energy and Women*, UNDP, 2001, www.undp.org/energy or www.energia.org/pubs

⁴ See description at www.ptfm.net, and “Multifunctional Platform for Village Power in Mali”, Burns and Coche, in *Generating Opportunities: Case Studies on Energy and Women*, UNDP, 2001, www.undp.org/energy or www.energia.org/pubs

21. Introduction of energy technologies, such as improved stoves, to meet environmental goals will be most successful if they also address the needs of the people meant to use them—For example, in India, a small non-governmental organization called TIDE (Technology Informatics Design Endeavour) found that women in rural areas rejected stoves distributed by the government to reduce consumption of fuel wood, because they did not reduce smoke, which was more important to the women. New designs that met women’s needs were rapidly adopted without any government intervention.⁵

III. ENERGY FOR SUSTAINABLE DEVELOPMENT AND GENDER IN INDUSTRIALISED COUNTRIES

22. In the industrialised nations, gender biases and social and economic differentials are also evident in terms of access to energy, affordability, and women’s role in achieving that, and the absence of women at the decision-making level of the energy sector. Over consumption in industrialised countries weakens the capacity of developing countries to cover their energy needs and to combat poverty, which affects primarily women.

A. The Issues At Stake

23. Access to energy, especially to “clean” energy, is more difficult for women in Eastern Europe than for women in Western Europe. Gathering wood for fuel to produce energy for

⁵ “Rural Women as Agents of Improved Woodstove Dissemination: A Case Study in Huluvangala Village, Karnataka, India”, Bhogle, in *Energy for Sustainable Development*, VII, No. 3, September 2003, www.iciglobal.org/esd.html

domestic needs exposes women to high risks of psychological and physical violence, not only in former war zones such as Kosovo or Chechnya, but also in many peaceful but impoverished transitional countries.

24. Governments are ultimately responsible for the provision of basic human needs. Liberalisation and privatization of essential public goods like water, energy and transport is problematic because it shifts responsibility from governments to private investors who remain largely unaccountable to citizens in general. This situation has a negative impact on the poorest and in particular on women's lives. In the EU, the liberalization of energy markets reduced energy prices and gave consumers more choices in terms of suppliers but at the expense of quality and availability—as when public transport services are cutback or catered exclusively to the needs of people in paid employment, or when water quality falls while prices rise. Previous privatisation processes in energy and water supply have shown that private households have profited substantially less from liberalisation of energy than has industry; across the EU private households paid on average 60 percent more for their electricity than industry in 2003 compared with 51 percent in 1994. At the same time, liberalisation is accompanied by massive job cuts, which are frequently detrimental to the advancement of women.

25. The rise of energy prices affects energy accessibility and its usage by the poorest, particularly elderly women and single mothers. For example, women on low incomes tend to live in poorly insulated houses, equipped with old and less energy efficient domestic

appliances. Both these factors lead to a higher demand for energy, and consequently higher expenditure on energy as a proportion of the overall household budget, which may, in turn, lead to energy poverty.

26. Energy poverty is a growing problem in industrialised countries, where many households need to spend around 20% of their income on all fuel use to heat the home to an adequate standard and for meeting their needs for lighting, cooking and running domestic appliances . The recent rise of oil and gas prices showed direct impacts on poor households that were forced to take out loans for their energy bills. In Canada e.g. in 2003, low income households (lowest quintile) spend over 14% of their income on fuel and electricity - three times as much as all households in Canada⁶. Comparable data is available for Great Britain, where 19.2 percent of single pensioner households or 16.8. percent of lone parent households are facing energy poverty⁷ (source) - both with a high share of women. Heating or cooling and cooking can be problematic for people on low incomes if they have a restricted choice of energy forms; electricity is expensive and solid fuel produces smoke that has negative health impacts.

Energy poverty affects women's and children's health

Women's projects in Armenia and Uzbekistan repeatedly report that energy poverty is a major problem. In order to keep warm and to have energy for cooking, poor households are forced to burn their domestic waste, which contains high percentages of plastic and other synthetic materials. The health impacts are immense and women, who are exposed when heating and cooking, are most vulnerable. Burning waste in burn barrels or woodstoves creates toxic

⁶ Canadian Housing and Renewal Association (2003) <http://chra-achru.ca/english/view.asp?x=654&id=400>

⁷ Center for Sustainable Energy, 2003 <http://www.cse.org.uk/pdf/sof1006.pdf>

airborne soot particles that can enter the body through the eyes, through the protective mucous in the nose or through capillaries in the lungs. The effects can include damage to the lungs, nervous system, kidneys and liver. Chronic diseases like bronchitis, emphysema and most cancers can take 20 years to develop and can be caused by low exposures to smoke and toxins that originally appeared harmless. Children can be at much greater risk; because of their smaller body size they inhale more air per pound of body mass than do adults therefore absorbing a proportionately larger dose of toxins⁸. Children's bodies are also more susceptible to damage from the mercury, lead, cadmium and other heavy metals found in the smoke of trash fires because their nervous systems are not fully developed.

27. In many countries, women are more severely affected by energy policy taxation instruments such as eco- or energy taxes because the proportion of their already lower incomes that has to be spent on energy rises as a result—although the eco-tax does have a more positive influence on the energy-saving behaviour of women than on that of men.

28. Women and men differ in their preferences regarding energy production. In Finland, for example, only 14 percent of women supported long-term use of nuclear power compared to 46 percent of men. Similar results have been obtained from many other countries including Germany, India, Korea and the U.S.⁹ The reasons given by women include the health risks; the risks associated with the technology itself (like the 1986 Chernobyl reactor disaster and the possibility such facilities could be possible targets for terrorist attacks); and the unresolved

⁸ Waldbott, G., *Health Effects of Environmental Pollutants* 1973, p. 252

problem of nuclear waste, which shifts the consequences of our present-day energy consumption on to future generations.

Is nuclear energy a safe alternative?

The experience of Chernobyl is proof that nuclear energy can be very dangerous, despite efforts by the pro-atomic lobby to present nuclear energy as a safe and useful alternative¹⁰. In the fields of science and medicine it is widely accepted that there is no safe threshold for radiation impacts on living organisms, meaning that any additional radiation exposure, however small, will inevitably cause negative effects among members of the exposed group although it is not possible to predict exactly who will suffer, when or in what way.¹¹

29. Energy consumption in industrialised countries also reveals a significant gender component. For example, in the transport sector women, in all age and income groups, consume less energy; they use more public transport and drive more energy-saving cars. In addition, the transport sector is the area with the greatest growth rate, which generates an increase of energy consumption and impacts climate protection, land use and biodiversity. However, outside the transport sector, few gender comparative consumption studies have been conducted. Some outstanding questions: Who consumes energy for what purpose and at what level (e.g. for care work, for information and communication technology and communications, for leisure activities, etc.)? How is energy demand generated or reduced and by what means

⁹ Kärkkäinen 2001, Kun Jai Lee, Greenpeace 2005

¹⁰ WHO 2005

¹¹ Press release by Ukrainian women's and environmental organisations on the occasion of the launch of a WHO study

(like heat insulation, energy-efficient appliances, geographical accessibility)? Who is affected by energy-saving measures and in what role, and what does that mean in terms of possible additional work (externalisation of gender-specific loads)?

30. A few studies on energy-saving measures and instruments, utilising a gender perspective, have been conducted. These studies show that, as a rule, women and men favour different measures. For example, men have substantially more faith in technical solutions to problems whereas women consider behavioural and lifestyle to be essential. At the same time, women are less informed about energy-saving measures than are men. This is linked to the technical bias of the information campaigns and/or a failure to address the target group adequately.

31. Women tend not to be involved in decisions about technical solutions to reduce energy consumption, partly because relatively few possess technical qualifications. Also, women have less financial resources and therefore less access to residential property, which means fewer women are making decisions about technical solutions as home owners like whether to install thermal-insulation and energy-efficient heating systems, or to use solar energy.

32. The low proportion of women employed in the energy industry as well as their marginal involvement in planning and decision-making are also illustrative of the gender inequality and inequity related to energy. While the proportion of women in the energy sector has started to rise in recent years, the sector is still dominated by men, particularly in the technical areas. In

claiming that the impacts of the Chernobyl catastrophe were not as heavy as previously presumed.

Australia women make up 20 percent of the work force in the electricity, gas and water sectors, but occupy less than five percent of technical posts; in Germany, the share of female technical staff in the energy industry is around six percent and in decision-making positions four percent. Women in the energy industry work mainly in administration, sales, finance, catering and personnel. The energy sector has a highly masculine image. This is known to be a significant barrier to female participation.

33. In the area of renewable energies, according to a recently conducted survey in Germany, management and supervisory boards in trade associations and companies are composed almost exclusively of men. The situation appears somewhat better among the energy distributors and in local and regional pressure groups. The burgeoning renewable energies sector must be monitored and evaluated very closely from the gender perspective, because many jobs have been and will continue to be generated here.

34. Energy companies are beginning to recognize that women bring benefits to the workplace. For example, in Canada, the oil and gas sector is promoting a diverse workforce and recognising the contributions people make as capable individuals rather than as members of designated groups.

B. Lessons Learned

35. In order to demonstrate the linkages between gender equality and sustainable energy policies, it is important to dedicate resources for research and data collection, and to disseminate case studies that promote best practices and share lessons learned.

36. The implementation of gender mainstreaming in many European countries is now providing the opportunity to close existing gaps—Instruments have been developed for monitoring gender impacts, but gender analyses of measures in the energy sector are currently still being carried out very much in isolation. Initial research projects incorporating gender related issues are being developed, but results and findings are not yet available.

37. The 2004 International Conference on Renewable Energies in Bonn provided an example of the benefits of involving gender experts and incorporating the gender perspective—The Women's Major Group presented the concerns of advocates, which were supported by many governments. Recommendations by the women's organisations to integrate the gender perspective, to develop appropriate instruments and to implement further training, were incorporated in the International Action Plan agreed in Bonn and could be instructive in the CSD process.

C. Challenges

38. In order to achieve progress in the degree to which the gender perspective is taken into account in the energy sector, the following requirements will have to be met:

- i. Gaps in data and statistics in the area of gender and energy must be filled as a matter of urgency—This applies, at the local, regional or national levels, to energy consumption by men and women based on types and purposes of use; preferences of women and men with regard to energy production and energy policy instruments and measures; findings concerning the conditions underlying energy-saving measures and their gender-differentiated effects; analyses of planning and investment in the energy sector that take into account gender-differentiated/supply-economic preferences and knock-on effects; and the proportion of women and men among employees and in decision-making posts in the energy industry and in bodies concerned with energy policy.

- ii. Existing instruments for reviewing the effects on both sexes of measures, programmes and plans in the energy sector must be utilised and developed further.

- iii. The allocation of funds in the energy sector should be tied to the implementation of gender mainstreaming.

- iv. NGOs, in particular environmental NGOs, must be made aware of gender perspectives in the energy sector and trained to integrate gender in their work. The same applies to the other Major Groups represented in the CSD process.

v. Case studies reflecting the gender aspects of energy policies and practices in industrialised countries must be collected, evaluated and used to replicate successful strategies, devise practical plans of action and identify possible obstacles.

IV. GENDER ASPECTS OF CLIMATE CHANGE

39. Climate change is an environmental problem with a strong political and development component. The impacts of global climate change are not only physical and economic, (for instance, in the form of natural disasters), but also social and cultural, jeopardising environmentally based livelihoods in many areas of the world.

40. As predicted by the Intergovernmental Panel on Climate Change (IPCC), “climate change impacts will be differently distributed among different regions, generations, age classes, income group, occupations and genders”¹². The IPCC also notes: “the impacts of climate change will fall disproportionately upon developing countries and the poor persons within all countries, and thereby exacerbate inequities in health status and access to adequate food, clean water, and other resources.” People living in poverty are more vulnerable to environmental changes. The gender-poverty links show that 70 percent of the poor in the world are women and their vulnerability is accentuated by race, ethnicity, and age. When natural disasters and environmental change happen, women and men are affected differently because of traditional, socially based roles and responsibilities.

41. Most climate change issues, policies and programs are not gender neutral. In light of this, several areas deserve attention, specifically: gender specific resource-use patterns; gender-specific effects of climate change; gender aspects of mitigation and adaptation; gender and decision-making on climate change; women's capacity to cope with climate change; and gender related patterns of vulnerability.

42. It is widely recognised that industrial countries bear the main responsibility for greenhouse gas emissions but the impacts are felt most severely in developing countries. It is therefore relevant to analyse the gender aspects of climate change in developed countries from the angle of emissions and to also consider mitigation strategies from a gender perspective. But so far, the critical issues of who is responsible for CO₂ emissions and through what activities, of how social, political and planning conditions affect emission reduction, and of the role played by gender in increasing or curbing emissions, have scarcely been identified, much less debated.

A. The Issues At Stake

43. Climate change has many gender-specific characteristics: (i) women are affected differently, and more severely, by climate change and natural disasters because of social roles, discrimination and poverty, (ii) women are still underrepresented in decision-making about climate change, greenhouse gas emissions and adaptation/mitigation, and (iii) there are gender

biases in carbon emissions. They should be included not only because they are most vulnerable but also because they have different perspectives and expertise to contribute. Gender is a significant dimension to take into account when understanding environmental change. Perspectives, responses and impacts related to disaster events are different for men and women, as men and women have different social responsibilities, vulnerabilities, capabilities and opportunities for adjustment and unequal assets and power relations; they experience environmental change and disasters differently.

Women are affected differently and more severely

44. The effects of climate change manifested in the increase of extreme weather conditions such as hot summers, droughts, storms or floods, impact women more severely than men, both in developing and in developed countries. For example, the 20,000 people who died in France during the extreme heat wave in Europe in 2003 included significantly more elderly women than men.

i. In natural disasters that have occurred in recent years, both in developing and in developed countries, it is primarily the poor who have suffered—and all over the world, the majority of the poor are women, who at all levels earn less than men. In developing countries, women living in poverty bear a disproportionate burden of climate change consequences. Because of women's marginalized status and dependence on local natural resources, their domestic burdens are increased, including additional work to fetch water, or to collect fuel and fodder. In some areas, climate change generates resource shortages and unreliable job markets, which lead to increased male-out migration and more women left behind with additional agricultural and

households duties. Poor women's lack of access to and control over natural resources, technologies and credit mean that they have fewer resources to cope with seasonal and episodic weather and natural disasters. Consequently traditional roles are reinforced, girls' education suffers, and women's ability to diversify their livelihoods (and therefore their capacity to access income-generating jobs) is diminished.

Women have been disproportionately affected by the Asian Tsunami

An Oxfam Report (March 2005) on the impact of the 2005 Asia Tsunami on women raised alarms about gender imbalances since the majority of those killed and among those least able to recover were women. In Aceh, for example, more than 75 percent of those who died were women, resulting in a male-female ratio of 3:1 among the survivors. As so many mothers died, there have been major consequences with respect to infant mortality, early marriage of girls, neglect of girls' education, sexual assault, trafficking in women and prostitution. These woes, however, are largely neglected in the media coverage¹³.

ii. Climate change, which reduces crop yields and food production particularly in developing countries, affects women's livelihood strategies and food security, and therefore their right to food. Women are responsible for 70-80 percent of household food production in Sub Saharan Africa, 65 percent in Asia, and 45 percent in Latin America and the Caribbean. Traditional food sources may become more unpredictable and scarce as the climate changes. Droughts and flooding can be detrimental to women who keep livestock as a source of income and for

¹³ Deepa Kandaswamy, 2005

security. Women's knowledge and experience of maintaining bio-diversity through the conservation and domestication of wild edible plant seeds and food crop breeding is key to adapting to climate change more effectively.

iii. Both in developing and in developed countries women are primary caregivers, combining the care for children and the elderly with their domestic and income-earning activities. These additional responsibilities place additional burdens on women impacting their ability to work outside the home and to deal with the effects generated by environmental changes caused by global warming.

Environmental degradation exposes the girl child to more work and less education

In a study executed on behalf of ACTIONAID in 1993-1994 in the Himalayan region of Nepal, it became clear that environmental degradation has compounded stress within households and pressure on scarce resources. This meant that the pressure on children, particularly girl children, to do more work and at an earlier age was increasing. Girls do the hardest work, have the least say and the fewest education options. Programmes that concentrate only on sending more girls to school were failing as the environmental and social conditions of the families deteriorated. ¹⁴

¹⁴ Johnson et al, 1995

iv. In traditional societies women are even more vulnerable to the impacts of climate change because they are often not allowed to participate in the public sphere, and are therefore less likely to receive critical information for emergency preparedness. They are also less mobile due to strict and gendered codes of social behaviour, and have less chances to escape from affected areas.

v. Climate protection instruments may, affect women and men differently because of their differing economic status¹⁵. Financial support of technical measures to protect the climate likewise tends to be more in favour of men's interests. Measures necessary to produce changes in behaviour do not receive a similar level of recognition and support.

vi. As reported by the gender disaster workshop in Ankara (2001)¹⁶, "Women's human rights are not comprehensively enjoyed throughout the disaster process. Economic and social rights are violated in disaster processes if mitigation, relief, and reconstruction policies do not benefit women and men equally. The right to adequate health care is violated when relief efforts do not meet the needs of specific physical and mental health needs throughout their life cycle, in particular when trauma has occurred. The right to security of persons is violated when women and girls are victims of sexual and other forms of violence while in relief camps or temporary housing. Civil and political rights are denied if women cannot act autonomously and participate fully at all decision-making levels in matters regarding mitigation and recovery."

¹⁵ See example on eco-taxes in Section II,A, 26.

¹⁶ DAW and UN/ISDR, "Environmental Management and the Mitigation of Natural Disasters: A Gender Perspective" Report of the Expert group Meeting, Ankara, Turkey, 6-9 November 2001.

Women are under-represented in decision-making

45. Women's role in communities is not formally recognized or accounted for in mitigation, adaptation and relief efforts. Women's knowledge about ecosystems and their strategies, experiences and skills for coping with natural disasters and water shortages, are often ignored. Strategies and policies to cope with climate change are neglecting the gender dimensions of climate change and the current gender-climate change agenda. Women are poorly represented in planning and decision-making processes in climate change policies, limiting their capacity to engage in political decisions that can impact their specific needs and vulnerabilities. Vulnerability and mitigation are part of the 1988 UN International Panel on Climate Change agenda but gender perspectives have still not been incorporated in its work.

i. The level of women's participation in planning and decision-making on climate protection is very low even in industrialised countries, and this is linked above all to the heavily technical nature and male dominance in key areas of work; energy, transport, town planning (Climate Alliance 2005). Consequently, it is generally men who profit more from the newly emerging jobs in these areas, be it renewable energies or emissions trading.

ii. At both international and national levels, it remains difficult for women to gain recognition in the field of climate protection. While there is now a small and growing group of committed women and men in policy forums advocating for gender to be taken into account, response to the issues remains limited. At the national level, the picture is not much better. The integration

of gender appears most likely to succeed at the regional and local levels but even here it is the exception rather than the rule.

Gender biases in carbon emissions 46 In some instances, responsibility for emissions appears related to the gender-specific division of labour, economic power and the different consumption and leisure habits of men and women. For example, emissions connected with mobility have a clear gender component. In Europe, in both the work and leisure contexts, women travel by car less frequently and over shorter distances, use smaller, energy-saving cars and fly considerably less frequently than men.

i.. Women are over represented as heads of low-income households and under represented in high-income groups. In this respect, income levels play a role in CO₂ emissions: the higher the income, the higher the emissions from larger houses with more electrical equipment, bigger cars and so on; the lower the income, the less the household's ability to use energy efficient appliances, build energy-saving houses or purchase electricity and heat produced from renewable sources. These differences must be addressed in climate change mitigation policies. Lack of technical education also has an effect since behavioural changes, including consumption patterns cannot be made without knowledge of the challenges and options for reducing CO₂ emissions.

ii. Women and men perceive the cause of climate change (including CO₂ emissions) differently. In Germany, more than 50 percent of women compared to only 40 percent of men,

rate climate change brought about by global warming as extremely or very dangerous. Women also believed very firmly that each individual can contribute toward protecting the climate through his/her individual actions. However, policy planning does not reflect in anyway these perceptions.

B. Lessons Learned

47. Women at the international level have organized to influence climate change negotiations and national policies, and important international networks promoting the role of women in energy and climate change have been established, including the Gender and Climate Change Network established by LIFE, WECF, SAGEN, and ENERGIA during COP-9¹⁷.

48. A concept for integrating the gender perspective in UN climate protection negotiations has been drawn up by women's networks in Germany supported by women's groups worldwide. Entry points for incorporating a gender perspective as well as strategies and possible alliances are identified. Initial steps toward implementation are planned for COP 11 at the end of 2005, including a strategy workshop, a women's caucus and a "Climate Talk" to present the issues to high-level representatives. A workshop, to be organised jointly with the IPCC will aim to close, in the medium term, the considerable gaps in research.

¹⁷ www.gencec.interconnection.org

49. At the local level, women provide particular kinds of social capital for mitigation, adaptation and coping with environmental change, actively organising during and after disasters to help their households and community.

50. In those situations where climate change programs and policies have recognized gender differences within the same community, household or stakeholder groups, there have been several benefits. For instance, unlike many other communities in Honduras, La Masica reported no deaths after Hurricane Mitch in 1998; six months earlier, a disaster agency had provided gender-sensitive community education on early warning systems and hazard management. The community decided to involve women and men equally in all hazard management activities and women took over from men the abandoned task of continuously monitoring the early warning system. As a result, the municipality was able to evacuate the areas promptly when Hurricane Mitch struck.

Climate Programme 2004-2008, Lower Austria—Gender Mainstreaming

The government of the Austrian federal state of Lower Austria has applied gender mainstreaming to its newly established climate protection programme. Five gender-mainstreaming measures have been drafted and assigned to the over 200 climate protection measures, to be taken into consideration during implementation. Resistance was substantial which is why at the end of the agreement process only five GM measures remained, although there had originally been double that number. These are as follows:

- Representation of women in decision-making positions
- Equality of opportunity in planning, organisation and promotions
- Promotion of women in technical occupations
- Inclusion of gender aspects in training
- Inclusion of gender aspects in PR work.

An initial review of implementation of the climate programme will be carried out in 2006, when implementation of the gender mainstreaming components will also be reviewed ¹⁸.

Source: www.noe.gv.at/service/RU/RU3/Klimabuendnis/klimaprogramm.htm

51. Women are able to map their risks and vulnerabilities from their own standpoint and to play an important role in early warning. Women's knowledge in adaptation (traditional and community-specific) could be used as an important resource.

Women have a deep understanding of their environment

Inuit women in Northern Canada have always had a deep understanding of weather conditions, as they were responsible for assessing hunting conditions and preparing the hunters accordingly ¹⁹. During a drought in the small islands of the Federal States of Micronesia, it was local

¹⁸ <http://www.fonafifo.com/index.htm>

¹⁹ <http://www.iisd.org/pdf/unuittrprprt4.pdf>

women, knowledgeable about island hydrology as a result of land-based work, who were able to find potable water by digging a new well that reached the freshwater lens²⁰.

52. Tapping women's interest in disaster mitigation and preparedness has led to improved community welfare during and after disasters. Ensuing strategies, including gender-sensitive target group analysis, identification and preparation of safe areas for villagers to escape floods, establishing local early cyclone warning monitoring and communication systems, research on indigenous resilience practices and the creation of women-accessible emergency loan funds, help the poor reduce their risks in natural disasters.

53. Through improved access to resources, technologies and finance, women have been more likely to increase efficiency in their use of renewable energy and mitigate climate change. More secure access to resources from forests and protected areas has resulted in less deforestation and maintenance of carbon sinks and improved access to safe water for humans and animals has enabled dry-land women to have more time for livelihood and subsistence activities.

²⁰ Cheryl L. Anderson, InterCoast, winter 2002/REF

Costa Rica's programme to promote conservation and carbon emission mitigation

Since 1996, Costa Rica has been implementing the Program to Pay for Environmental Services (Programa de Pago por Servicios Ambientales) to promote and encourage conservation, reforestation, carbon emission mitigation and its greenhouse effect and the sustainable management of Costa Rica's natural resources. The programme is a mechanism that offers economic rewards to landowners who don't cutback the forests on their land. The problem also encompasses ownership issues since most landowners are men and women have little access. To help resolve this problem, FONAFIFO (Fondo Nacional de Financiamiento Forestal), the national institution in charge of implementing the program as well as promotion of gender equity, imposes a fee to ensure that a certain amount of the gains goes to supporting women to become landowners.

54. Improvements in family income have reduced the need for males to migrate to urban and other areas, thereby increasing rural labour availability for anti-desertification and reclamation practices (for example, soil and water conservation, cut-and-carry fodder systems, intensive agro-forestry systems) and enabling traditional ecosystem management practices to be passed on by both women and men.

55. Gender-sensitive methods of problem analysis, situation description and impact assessment will have to be developed for climate change contexts. Instruments such as gender impact

assessment can already be applied and can be developed further during the process of application. For all instruments and measures relevant to climate protection, in local areas and regions as well as at the national and international level, an impact analysis should be conducted regarding the situation of women and men and how gender justice and climate protection can be mutually reinforcing. Questions include: What is the socio-economic situation forming the backdrop to these measures? Is care work and its requirements recognised and taken into account? How is this reflected in the general situation (for example, financial aid, information, supportive measures)?

Toolkit: “Climate for Change—Gender Equality and Climate Change Policy”

The Climate Alliance of European Cities conducted its first gender project between 2003 and 2005. In cooperation with 10 cities in four European countries, the situation of women in municipal climate protection bodies was examined and instruments were discussed with a view to increasing the proportion of women in decision-making positions.

Discussions also touched on ways that increasing the proportion of women would contribute to climate protection, and whether a more gender-sensitive climate protection policy could automatically be expected as a result. Even though the questions were left unanswered, there was interest to continue working on them in the future²¹

²¹ <http://www.climateforchange.net>

Six Principles for Engendered Relief and Reconstruction: “Nothing in Disaster Work is Gender-Neutral”:

- Think big: gender equality and risk reduction principles must guide all aspects of disaster mitigation, response and reconstruction. The window of opportunity closes quickly.
- Get the facts: gender analysis is not optional or divisive but imperative to direct aid and plan for full and equitable recovery.
- Work with grassroots women: women’s community organizations have insights, information, experiences, networks, and resources vital to increasing disaster resilience.
- Work with and develop the capacities of existing women’s groups.
- Resist stereotypes: base all initiatives on knowledge of difference and specific cultural, economic, political and sexual contexts, not on false generalities.
- Take a human rights approach: democratic and participatory initiatives serve women and girls best. Women and men alike must be assured of the conditions needed to enjoy their fundamental human rights, as well as simply survive.
- Respect and develop the capacities of women: avoid overburdening women with already heavy workloads and family responsibilities ²².

V. CONCLUSION

²² Gender and Disaster Network, 2005/REF

56. This paper provides background information and lessons learned concerning the gender aspects of energy for sustainable development and climate change, with the expectation that this material will be taken into account in the discussions during CSD-14 and in the recommendations made at CSD-15. Although the gender issues discussed here may be unfamiliar to some of the CSD participants, these are very important concerns for women and men throughout the world. Attention to the lessons and challenges that have been reported in this document will increase the equity and effectiveness of energy for sustainable development and climate change policies and initiatives adopted by national governments, international agencies, donor countries, non-governmental organizations and others involved in development decisions.

57. There is a need to refocus the thinking and the debate on energy for sustainable development and climate change to include a human rights perspective. Integrating a rights-based approach to access to sustainable and affordable energy is an approach that will recognise and take into account women's specific needs and women's human rights. Current economic models based primarily on privatisation strategies do not include accountability in terms of meeting people's basic needs.

58. Women must be recognised as agents of change who have a significant role to play in creating sustainable models for energy consumption and production, and in responsible climate change mitigation and adaptation efforts. There is an urgent need to include gender equality and involvement of women at all environmental planning and decision-making levels.

Empowerment through capacity building and technical training will increase women's capacity to effectively participate in energy policy-making and decision-making bodies.

59. Finally, addressing the absence of the gender dimension in the UNFCCC, and the scarcity of research focusing on the gender aspects of climate change will also help to build a more consistent and solid approach regarding climate change policies.