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GENDER AND CLIMATE CHANGE

Capacity development series
AFRICA

Training module 3

Gender and energy

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I Purpose of the training module

Box 1: Icon key


Activity or exercise


Link to other training modules


PowerPoint or video presentation


Readings


Important information


Timing indication


Internet link

IA *Rationale*

The United Nations Development Programme (UNDP) has developed training modules and policy briefs on gender and climate change themes of specific relevance to the Africa region, including overall climate change issues, adaptation, energy, agriculture and food security, and finance. The knowledge products in this series are designed to build capacity in the African region with respect to gender and climate change and broader issues of sustainable development. These materials draw on capacity development work being undertaken in partnership with other members of the Global Gender and Climate Alliance (GGCA) and complement existing GGCA training modules, resource guides, and other related knowledge products. Their preparation has been made possible by contributions from the Government of Finland and the Government of Denmark (for more detail, see the introduction to module 1).

This third module in the series deals with gender issues related to energy.

IB *Module structure and method*

This module provides basic information and learning tools for understanding, advocacy and action on:

- Gender-differentiated aspects of rural energy production, use and distribution in Africa
- Climate stress on the energy sector and the gendered results of these changes
- The need and options for the integration of gender perspectives in energy policy and development and deployment of clean energy technologies

Part II of this module outlines learning objectives, i.e., what users are meant to understand upon conclusion of the training. Part III presents key messages, followed by Parts IV and V, which examine the nexus between gender, energy and technology including the gender-based constraints that women face in energy production and use, and the impact of climate change on the energy sector. Part VI presents tools and options for bridging the identified gender barriers.

The learning tools in this module include case studies from countries in the region, group activities and video. It also uses seven easily identifiable pictures and icons (see Box 1).

This module includes references to other thematic modules in this series. Facilitators and participants are, therefore, encouraged to consult the other modules in this series.

Training based on this module could be delivered in three sessions:

- Session 1: Parts II and IV (1 hour)
- Session 2: Part V (1 hour)
- Session 3: Part VI (1 hour)

The Learning tools section offers a breakdown of time for different activities.

Objectives

- Understand the relationship among climate change, mitigation, energy and gender.
- Understand the gender dimensions of rural energy production, distribution and use in Africa.
- Identify gender barriers in the energy sector that contribute towards the poverty of women (time and resource poverty) as well as associated health risks.
- Identify responses to address the various gender barriers in the energy sector in order to achieve greater gender equality, reduced emissions and energy security.

Key messages

- Energy is key to development, poverty alleviation and achievement of the Millennium Development Goals.
- The impact of climate change on the energy sector in Africa is yet to be thoroughly studied, but those studies available show that the sector is already undergoing tremendous external stress and changes.
- Energy tends to be equated with electricity, but most households in Africa do not have access to electricity; in Africa, many countries rely on biomass and fuel wood and their collection and management is the responsibility of women.
- Women and men play very different gender-defined roles in energy production, distribution and utilization in households, communities and the market.
- Women are time-poor and disproportionately exposed to health risks associated with some forms of energy production.
- Climatic stresses on forest resources is increasing the burden on many women, forcing them to travel even longer distances to fetch fuel wood.
- Several small-scale technologies can improve rural energy production.
- Access to modern energy services can improve the socio-economic status of women — they reduce the time and effort involved in household chores and the health risks associated with current energy practices. The saved time can then be invested in other productive activities such as education, health, and entrepreneurial activities.

- Introducing cleaner, more efficient and renewable sources of energy can also bring training, employment and entrepreneurial opportunities for women and men.

- For these reasons, empowering women and girls and drawing on their needs and knowledge are necessary for energy development, energy security and reduced emissions.

- Incorporation of gender perspectives into energy projects, policy and planning is key to ensuring their effectiveness.

IV The gender face of energy

Learning objective: Understand the gender dimensions of rural energy production, distribution and use in Africa

1. While not much has been written about the impact of climate change on the energy sector in Africa, major sources of energy in the continent are sensitive to the effects of climate change (IPCC 2007). Some studies, for instance, state that recurrent droughts are creating a power crisis in East Africa, a region that derives close to 80 percent of its electric supply from hydropower (Karekezi et al. 2009) (paragraphs 11 and 12).

2. Electricity for lighting and cleaner cooking technologies for food preparation are still a luxury for many rural women and men and modern energy services are far from being accessible. While this is true for both the formal and informal sectors, this problem is more pronounced in the informal sector, where solid fuels and traditional biomass are the main source of fuel and poor women tend to be more involved in this sector. The formal energy sector in Africa is severely limited in its reach and functioning (Karekezi et al. 2009; IPCC 2007). In sub-Saharan Africa, only an estimated 51 percent of urban populations and a mere 8 percent of the rural population have access to electricity, compared with 99 percent and about 80 percent, respectively, in northern Africa (IPCC 2007). Other exceptions to the situation in sub-Saharan Africa include South Africa, Ghana and Mauritius. Extreme poverty and the lack of access to other fuels mean that 80 percent of the overall African population (and 80 percent of sub-Saharan Africa) relies primarily on biomass to meet domestic energy needs. In Kenya, Tanzania, Mozambique and Zambia, for example, nearly all rural households use wood for cooking and over 90 percent of urban households use charcoal. This dependence on biomass has deleterious effects on both people and the environment, such as the loss of vegetation and health problems associated with the carrying of fuel wood and indoor pollution. The rise in urbanization and energy demands, and volatile oil prices, further complicate the energy situation in Africa (IPCC 2007). Curbing global GHGs is a critical need in the fight against climate change. Because the demand for energy is growing, the attendant increase in energy-related emissions is a source of great concern. According to the International Energy Agency (IEA), world energy-related carbon dioxide emissions could rise from 30.2 billion metric tons in 2008 to 35.2 billion metric

tons in 2020 and 43.2 billion metric tons in 2035—an increase of 43 percent over the projection period (IEA 2011). There is a strategic interest in curbing the energy sector's contribution to climate change. On the other hand, energy also has strategic social and economic benefits. Energy is a key factor in poverty alleviation. Women bear a disproportionate weight of the world's poverty, comprising 70 percent of those who live on a dollar a day (World Bank 2009). Like many other sectors, therefore, energy too has a gender face (paragraphs 4 to 8).

3. The reality of gender-based roles in energy generation, utilization and distribution in many developing countries is the opposite of the prevalent idea that it is a male-dominated field. Energy is the primary responsibility of women, especially in rural communities, where most energy is derived from traditional biomass fuels such as wood, charcoal and agricultural wastes (Carr et al. 2010; ENERGIA 2007). Women face a range of gender-specific problems in their roles in the production and utilization of energy services (see paragraph 13). Various factors account for this:

   - Women and men have different energy needs linked to their gender roles.
   - Women bear the main burden of biomass collection.
   - Women are poorer than men (in resources and time).
   - Women are generally disadvantaged in terms of ownership and access to land, natural resources, credit, information and decision making, at all levels.

4. Energy is often thought of in terms of the formal power sector – i.e., electricity and fuel for the operation of heavy machinery and automobiles – which is by and large considered as men's work. Men and women are affected differently by energy policies wherever their home, work and community roles differ (ENERGIA 2007). For example, in many societies, electrical energy for use in households and public facilities is considered dangerous. Boys are expected to face and master these dangers. While girls are encouraged to get acquainted with electricity step by step, they are not exposed to more advanced knowledge about it (ENERGIA 2007). Electrical installation, plumbing, and installation of heating systems are often seen as male domains (Aguilar, L. et al 2009). Such stereotypes often lead to women being excluded from training and employment opportunities and discussions about energy plans and policies (Women Watch 2009, ENERGIA 2007).

Table 1: Female participation in firm ownership, management, and the workforce

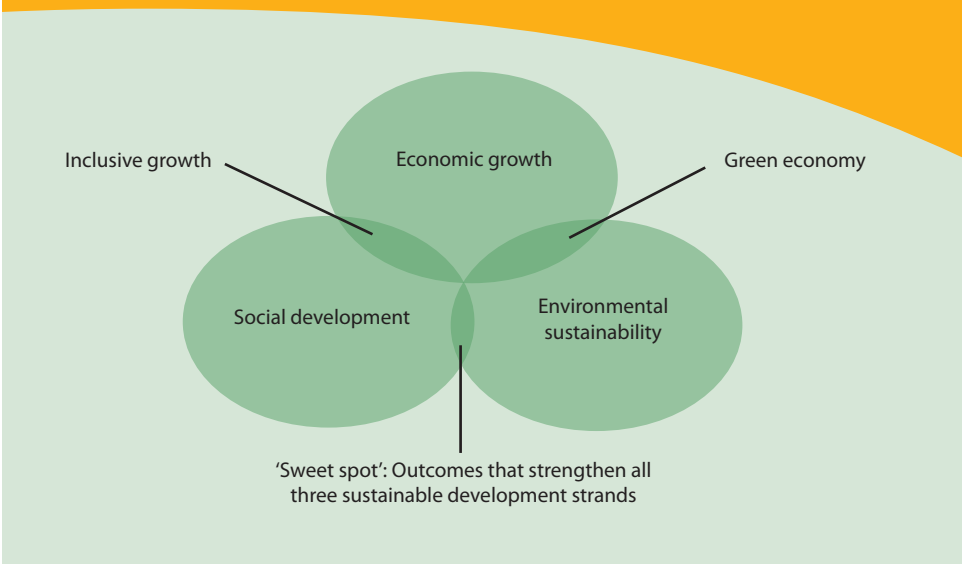
Economy	Percent of firms with female participation in ownership	Proportion of permanent full-time workers that are female (%)	Proportion of permanent full-time non-production workers that are female (%)*	Percent of firms with a female top manager
Sub-Saharan Africa	32.1	24.4	7.2	15.2
Angola	56.6	50.7	20.8	13.5
Botswana	55.3	41.1	13.4	16.4
Burkina Faso	19.2	21.5	6.4	11.3
Malawi	58.3	30.6	8.8	21
Congo DR	38.9	18.7	6.7	13.7
World	35.7	31	10.1	18.5

Source: Adapted from World Bank (2011a).

5. Energy use in business and entrepreneurships also has a gender dimension. Table 1 shows female participation in firm ownership, management, and the workforce, focusing on manufacturing firms. Women have less access to finance and energy-related services than men in many African countries. The World Bank Group's Enterprise Survey, for example, shows that women-headed businesses generally face more impediments than men in accessing grid electricity. Experiences in Ethiopia, Ghana, Kenya, Tanzania and Zambia suggest that women entrepreneurs also face greater discrimination in the form of delays in obtaining electrical connections and the expectation that they will pay bribes to get them (Alstone et al. 2011).

6. Lack of recognition of the role of women in the energy sector often leads to 'gender-blind' energy policies as well as their financing and execution (ENERGIA 2007). For example, the Clean Development Mechanism, one of the major global climate funds, has been subjected to critique for de-emphasizing investments in small-scale projects that benefit women and poor communities in favour of large-scale projects that are likely to garner

Figure 1: The sustainable development 'sweet spot'



Source: UNDP (2012).

large Certified Emission Reductions, a type of emissions unit (or carbon credits) issued for emission reductions achieved by Clean Development Mechanism projects under the rules of the Kyoto Protocol (UNDP 2010; Karlsson 2010). At the same time, some finance mechanisms, including the Climate Investment Funds and Global Environmental Facility, are working to become more gender-responsive. Some large infrastructure projects designed to promote cleaner, more efficient forms of fossil fuels and renewable energy can bring many opportunities for gender equality when designed properly. For example, energy projects can offer new skills training, increased employment and entrepreneurship opportunities for women, as well as more equitable benefit sharing at the community level.

7. The Human Development Report (2011) observes that "women often show more concern for the environment, support pro-environmental policies and vote for pro-environmental leaders, their greater involvement in politics and in nongovernmental organizations could result in environmental gains, with multiplier effects across all MDGs" (UNDP 2011). Further, women play a crucial role in ensuring the efficiency and sustainability of responses to climate change (Carvajal-Escobar et al. 2008). More specifically, women can help policy makers formulate programs to help increase access to grid and off-grid sources of electricity (Alstone et al. 2011). The failure to consider gendered interests and needs could, therefore, limit the effectiveness not just of energy programmes and policies, but of all development activities that involve energy use.

   Indeed, truly equitable and sustainable development requires full integration of the three pillars of development – economic, social and environmental – through the expanded use of 'triple-win' policies and programming that intertwines them. And, in every case, gender equality and women's empowerment should be fully integrated in these policies (UNDP 2012; see Figure 1).

For more on the gender-climate change nexus see Module 1

Summary questions

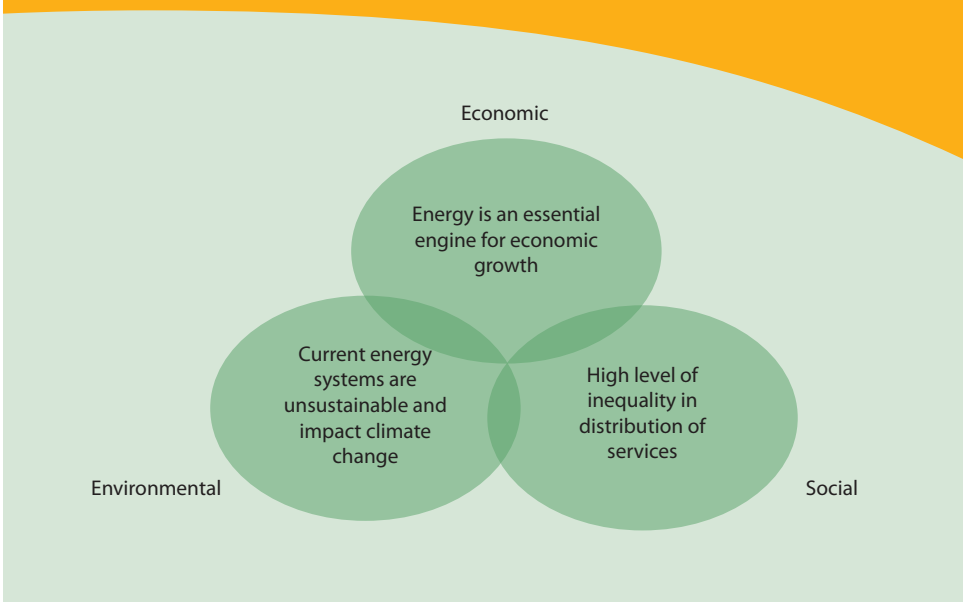
- **What is your understanding of the nexus between energy and climate change in Africa?**
- **What is the relationship between gender and energy in the formal and informal sectors?**
- **What factors account for gender-specific problems that women face in relation to their roles in the production and utilization of energy services?**

v Gender barriers in energy

Learning objective: Identify gender barriers in the energy sector that contribute towards poverty of women (time and resources) as well as associated health risks

8. The energy sector poses complex social, environmental and economic challenges. Energy is a social challenge in that there is much inequality in its access and consumption (see paragraphs 2-6). It is an environmental challenge because excessive use of certain forms of energy such as coal could aggravate climate change. And it is an economic challenge because limitations in energy supply can constrain economic growth. Failure to fully integrate energy and gender into the three strands of development hinders the achievement of the 'triple wins' of sustainable development (UNDP 2011; see Figure 2).

Figure 2: Energy as a sustainable development challenge



Source: UNDP (2011).

Table 2: People without electricity

	Without electricity		Relying on traditional use of biomass for cooking	
	Population (in millions)	**Share of population**	**Population (in millions)**	**Share of population**
Africa	*587*	*58%*	*657*	*65%*
Nigeria	*76*	*49%*	*104*	*67%*
Ethiopia	*69*	*83%*	*77*	*93%*
DR of Congo	*59*	*89%*	*62*	*94%*
Tanzania	*38*	*86%*	*41*	*94%*
Kenya	*33*	*84%*	*33*	*83%*
Other sub-Saharan Africa	*310*	*68%*	*335*	*74%*
North Africa	*2*	*1%*	*4*	*3%*
Developing Countries	*1314*	*25%*	*2662*	*51%*
World	*1317*	*19%*	*2662*	*39%*

Source: IEA 2011.

9. Grid-based electrical power does not reach many rural and poor urban communities in developing countries, nor do they receive adequate distribution of gas or other cooking and heating fuels (UNDP 2011). This training module focuses primarily on these communities. At present, only 24 percent of the people in sub-Saharan Africa have access to electricity and 25 countries are in a state of power crisis. Worldwide, about 1.4 billion people (more than one in five) lack access to electricity and about 3 billion people (40 percent of the global population) rely on wood and charcoal as their primary source of energy (IEA 2011; UNDP HDR 2011; UNDP 2011; World Bank 2010; Toulmin 2009).

10. As the figures in Table 2 show, the reliance on traditional biomass energy resources in Africa (mainly among rural households) is considerably high, even by developing country standards. In Ethiopia, DR Congo and Tanzania,

Box 2: The impact of drought-related power crisis on the cost of electricity in Uganda

In Uganda, electricity generation from hydro accounts for about 50 percent of all electricity generated. Lake Victoria dropped by at least six feet over three years, resulting in reduced power generation at the Kira and Nalubale hydropower stations. This necessitated the acquisition of alternative sources of energy, an exercise that increased operation costs across the board, though the impact varied across industry.

Power shortages were of particular concern to the industrial sector, given the industry's huge demand for electricity. The electricity supply shortage dampened GDP growth, which dropped from an average of 6.5 percent over the past 10 years to 5 percent in 2005/2006. Turning to emergency electricity plants in Uganda led to increased power tariff: in 2005, the domestic tariff was UShs216.90 per kWh; when emergency electricity generation was at its peak, the tariff rose to UShs426.10 per kWh, a 96 percent increase. This harmed low income users, who were forced to either reduce their consumption of electricity or to stop using it altogether (Karekezi et al. 2009).

for example, biomass accounts for up to 93 percent to 95 percent of the total energy consumed (IEA 2007, 2011), with a similar pattern in many countries in the region. Although more research remains to be done on the effects of climate change on the energy sector in Africa, this dependence on biomass means that climate change and variability will most likely affect the sector adversely. Climate change impacts accelerate loss of vegetation, and thus desertification, through decreasing rainfall and increasing the incidence of disasters (e.g., droughts). Other anthropogenic factors such as land use and deforestation worsen the situation. For example, around four hectares of forest (an area roughly twice the size of Rwanda) are felled or burnt in Africa each year (Aguilar, L. et al 2009; Toulmin 2009).

11. Sources of energy other than biomass, such as hydropower, are also prone to the adverse impacts of climate change. In East Africa, for instance, one study notes that varying rainfall patterns have led to severe droughts which affected hydro-electric power generation in the region while excessive flooding contributes to the rapid build-up of silt in hydropower dams, affecting the

amount of water available for electricity generation (Karekezi et al. 2009). Karekezi et al. note that among the challenges facing East Africa's power sector is the recurrence of droughts: "the intensity of droughts is now so severe that their occurrence almost cripples the region's power sector" and that "this often leads to unprecedented power crises that have become a common feature of the region's power sector" (Karekezi 2009; see Box 2).

12. Two gender-specific problems that rural women face as producers and users of energy are health and time-poverty.

    First, gendered roles in society often ascribe the responsibilities for collecting fuel to women and girls. Women carry greater loads than men but have a lower intake of calories because custom usually dictates that men receive more food and water (WHO 2011; UNDP 2011; Dankelman 2010). The physical burden in carrying out these responsibilities often can seriously strain women's health, since carrying heavy loads over long periods of time causes cumulative damage to the spine, the neck muscles and the lower back, thus leading to early ageing of the vertebral column (WHO 2011). Indoor pollution is also a related and big health problem for women and girls. Inefficient burning of biomass indoors releases high levels of black carbon and accounts for nearly 2 million deaths per year, mainly of women and children in the poorest communities in the world (IPCC 2007; WHO 2011). Poor nutrition among women *vis-à-vis* their workload also means that they could be prone to increased prevalence of anaemia, pregnancy and delivery problems, and increased rates of intrauterine growth retardation, low birth weight and perinatal mortality (WHO 2011).

    Second, women and girls spend considerable time in gathering fuel as well as cooking and other household chores, which raises another gender-relevant dimension of poverty: time poverty (see Box 3). Rural women are 'time-poor', in the sense that their ability to engage in other productive activities (such as education) is constrained by the time expended on energy production activities like the collection of firewood (World Bank 2006). This is evidenced by, among other things, the difference in literacy rates and school enrolment levels for men and women. For example, two thirds of all adult illiterates are women (UNESCO 2008). In sub-Saharan Africa, the school enrolment rate for girls is similarly 85 per 100 boys for primary school, and 83 and 71, respectively, for secondary and tertiary education (UN DESA 2010). Since

Box 3: Time poverty

The concept of time poverty has been developed to analyse time allocations of individuals and the opportunity cost of the same for their welfare. Time poverty can be understood as the fact that some individuals do not have enough time for rest and leisure after working in the labour market, at home, or at other activities such as fetching water and wood. Put differently, those who work long hours have to make hard choices about what they allocate their time for, which has implications for the welfare of both individuals and the household. Unlike consumption or income, where economists assume that 'more is better,' time is a limited resource—more time spent working in paid or unpaid work-related activities entails less leisure and therefore higher time poverty

Source: World Bank (2006: 6).

women collect firewood and water largely by foot, a scarcity of natural resources caused by climate change will increase their time poverty, as women will be forced to travel farther to collect these resources (World Bank 2009; see modules 1 and 2).

Sisters of the Planet – Martina (video link) (see Appendix B: Learning tools)

13. The dire situation for women as managers of energy production can be considerably improved by access to modern forms of energy. Reliable and efficient energy sources are essential for basic household needs such as lighting, cooking and heating, clean water and sanitation, and for other national development goals including mechanical power, transport and telecommunication services (Ouédraogo 2011). Increasing access to clean and reliable off-grid energy sources is an alternative way to improve the lives of millions, although this depends on the expansion of grids and the quality of grid-based electricity access (e.g., improved reach, fewer service interruptions and better quality power) (Alstone et al. 2011). Although access

Box 4: The importance of modern energy sources in achieving the MDGs

Goal 1: Eradicate extreme poverty and hunger. *Access to modern energy facilitates economic development by providing more efficient and healthier means to undertake basic household tasks and means to undertake productive activities more generally and often more cheaply than by using the inefficient substitutes, such as candles and batteries. Modern energy can power water pumping, providing drinking water and increasing agricultural yields through machinery and irrigation.*

Goal 2: Achieve universal primary education. *In impoverished communities, children commonly spend significant time gathering fuelwood, fetching water and cooking. Access to improved cooking fuels or technologies facilitates school attendance. Electricity is important for education because it facilitates communication, particularly through information technology, but also by the provision of such basic needs as lighting.*

Goal 3: Promote gender equality and empower women. *Improved access to electricity and modern fuels reduces the physical burden associated with carrying wood and frees up valuable time, especially for women, widening their employment opportunities. In addition, street-lighting improves the safety of women and girls at night, allowing them to attend night schools and participate in community activities.*

Goals 4, 5 and 6: Reduce child mortality; improve maternal health; and combat HIV/AIDS, malaria and other diseases. *Most staple foods require cooking and reducing household air pollution through improved cooking fuels and stoves decreases the risk of respiratory infections, chronic obstructive lung disease and lung cancer (when coal is used). Improved access to energy allows households to boil water, thus reducing the incidence of waterborne diseases. Improved access advances communication and transport services, which are critical for emergency health care. Electricity and modern energy services support the functioning of health clinics and hospitals.*

Goal 7: *Ensure environmental sustainability. Modern cooking fuels and more efficient cookstoves can relieve pressures on the environment caused by the unsustainable use of biomass. The promotion of low-carbon renewable energy is congruent with the protection of the environment locally and globally, whereas the unsustainable exploitation of fuelwood causes local deforestation, soil degradation and erosion. Using cleaner energy also reduces greenhouse-gas emissions and thus slows global warming.*

Goal 8: *Develop a global partnership for development. Electricity is necessary to power information and communications technology applications.*

Source: IEA (2010).

Box 5: Modern fuels and technology options

Cooking, heating, food processing

- *Liquefied petroleum gas (LPG) or kerosene*
- *More efficient stoves or solar cookers*
- *Biomass briquettes*
- *Biogas or bioethanol produced in biomass digester*

Mechanical power for water pumping, household and commercial enterprises, and transportation

- *Windmills, water mills or solar pumps*
- *Electrical grid*
- *Motors run on liquid fuel (gasoline, diesel or biofuel)*

Lighting, communications, refrigeration, and health, education and social services

- *Electrical grid*
- *Diesel generators*
- *Wind turbines*
- *Hydroelectric generators*
- *Solar photovoltaic panels*
- *Hybrid generating systems*

Source: ENERGIA (2011).

to more modern energy alternatives will not necessarily lead to greater equality in gender roles, it can at least relieve some of the most burdensome and unhealthy aspects of their daily lives and expand the development options available to women, their families and their communities (ENERGIA 2011).

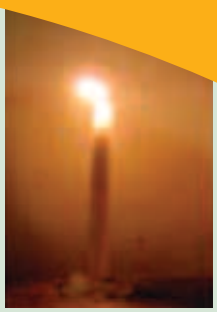
On a larger scale, energy policies could catalyse national development and play a vital role in poverty alleviation and mitigation of the ill effects of climate change (IEA/UNDP/UNIDO 2010; Ouédraogo 2011). The 2010 World Energy Outlook has underscored the significance of the nexus between energy and poverty and states that lack of access to modern energy services

Figure 3: Fuel-based off-grid lighting technologies

Pressure lamp

Hurricane lamp

Tin lamp



Candle

Source: Alstone et al. (2011).

must be overcome if the MDGs are to be achieved. Specifically, MDG 1, the goal of eradicating extreme poverty and hunger by 2015, may not be achieved without progress on access to modern energy services (IEA 2010; see Box 4).

14. As noted in paragraph 2, emissions from the power sector is a cause of concern in climate change. Besides relieving women of drudgery and bettering the livelihoods of poor and marginalized communities, including of women, cleaner technologies therefore can mitigate the effects of such emissions (see Box 6).

15. Examples of low-carbon energy technologies that can modernize rural energy include solar photovoltaic panels, small hydro systems, wind turbines, generators fuelled by plant oils or biofuels (including biogas, biodiesel and bioethanol) and improved cooking stoves. These technologies can provide electricity in off-grid or underserved areas (Karlsson et al. 2010; see Box 5). Other simple yet consequential off-grid lighting devices such as pressure lamps and candles, along with the latest advances in clean energy technology (such as solar, LED, and advanced batteries), could also provide safe, efficient, affordable alternatives to fuel-based lighting (Alstone et al. 2011, see Figure 3).

Summary questions

- **Explain the importance of modern energy sources in achieving the millennium development goals.**
- **How do traditional energy sources affect women's health?**
- **What is time poverty? How does energy production lead to women being 'time-poor'?**

VI Incorporating gender perspectives into energy

Learning objective: Identify policy responses to address the various gender barriers in the energy sector in order to achieve greater gender equity and energy security

16. Energy services such as electricity for lighting and cleaner cooking technologies are still a luxury for rural women. Properly developed and deployed sustainable energy technologies could provide effective climate change responses (mitigation and adaptation) and improve livelihoods of the poor in general and of rural women in particular (Karlsson et al. 2011). Sustainable clean energy and renewable energy options such as geothermal, small hydropower and wind are considered 'ideal' for Africa because these resources are widely available and hence should also be effectively employed (Karekezi et al. 2009). Such options are not only environmentally friendly, but also more easily adaptable as responses to the impacts of drought (which could be climate change-related) on the power sector (Karekezi et al. 2009).

Box 6: Women and clean energy technologies

"Access to better energy services can improve women's social, economic and political status — reducing the time and effort involved in household chores, providing better health and educational conditions, expanding income-generating opportunities, and easing their participation in public affairs. At the same time, greater sensitivity to gender issues increases the effectiveness of energy programmes and policies, as well as other types of development activities that involve energy use, by ensuring that the needs and concerns of both men and women are taken into account. Availability of kerosene or liquefied petroleum gas, improved stoves, electricity, and mechanical power significantly improves the quality of life for women in rural areas and relieves them of much of the difficult, unpaid work currently required to care for their families."

Source: ENERGIA (2011).

17. Mainstreaming gender into energy projects and energy planning process requires an appreciation not only of the different energy needs of women, but also of the contributions of women to climate change responses. It would lead to high quality, effective, gender-sensitive energy project planning processes. Women should be involved in the design and production of locally appropriate energy technologies (Karlsson et al. 2011). There are two aspects of project planning where gender concerns can be incorporated: 1) energy technology projects that specifically promote a particular type of technology and 2) integrated projects that include energy as a component of a larger development

Box 7: Energy project planning situations for gender mainstreaming

There are at least two different project planning situations in which gender, technology and energy can come together: 1) energy technology projects and 2) integrated development projects, in which energy is a component.

Energy technology projects: *These projects focus on the dissemination and adoption of one or two particular types of technology, such as solar home systems, improved stoves or decentralized mini-grids. In some ways, such projects can be thought of as supply-driven: their purpose is to promote certain kinds of energy technology for the good of a given population. In this case, the main questions that arise concerning a gender perspective are, "To what extent will this technology, or these technologies, bring about positive gender impacts? How can the project affect household health, decision-making and time poverty? How can women and men benefit from new training, employment, entrepreneurial and community benefit-sharing?" An energy technology project does not necessarily have to be initiated in the energy sector; for example, smokeless stoves could be initiated as a health sector project.*

Integrated development projects: *Integrated development projects try to assist communities to develop over a broad range of sectors of which energy may be just one and in which energy may be just a component necessary for achievements in other sectors. The gender-energy question then becomes, "What are the energy components necessary to achieve overall goals, including gender goals, and how can these energy requirements best be satisfied?" Variations on this model are women's development projects, where the intended beneficiaries clearly are women. This addresses the extent to which energy hinders the achievement of the gender goals and how energy can be used to further women's development.*

process. Box 7 discusses these two areas in more detail. There is also a set of gender analytic tools that have been developed specifically for energy and technology planning (see PowerPoint presentation). A technology-only approach, however, is not the only option for gender mainstreaming in energy projects and policies. On the contrary, some 'women-friendly technologies' can harm the lives of women if they are not implemented in a gender responsive manner.

18. A good source for mainstreaming gender into energy projects and planning is a UNDP-produced gender mainstreaming training manual. Module 4 specifically mentions four areas of consideration in policies and strategies for gender mainstreaming in energy projects/planning: 1) emphasizing the importance of mainstreaming in integrated development strategies; 2) applying participatory approaches; 3) using gender-specific data and analysis; and 4) paying attention to gender-specific training and financing (UNDP 2007). In addition, capacity development, specifically on the national level, is crucial in identifying appropriate technological solutions and the formulation of gender-responsive policies and projects.

Box 8: Gender audit of energy policy in Botswana

The Botswana Technology Centre, in consultation with the Energy Affairs Division of the Ministry of Minerals, Energy, Water Resources and other stakeholders, executed a gender audit of Botswana's national energy policies. Botswana is the first country where such an audit was held. The audit showed that, although there is a common understanding of the different roles of women and men in Botswana, knowledge of the relationship between gender, energy and poverty was still limited. This has resulted in gender-blindness within the country's energy policies and programmes and a lack of consultation with household residents – and particularly with women –in developing energy policy. The audit also showed a lack of gender-disaggregated data and a general lack of association between energy services and the MDGs. Based on this audit and follow-up trainings, the awareness within the government and the Botswana Power Corporation staff has increased. The Corporation recently started a ground-breaking gender mainstreaming programme for rural electrification. The audit also led to a pilot project for collecting gender-disaggregated data and strengthening gender expertise in the country's energy sector.

Source: Wright and Gueye (2009).

Gender Analytical Tool (PowerPoint presentation)

19. Climate change financing focusing on the energy sector should complement the broader developmental goals that include gender parity, poverty eradication and sustainable development (UNDP 2011). Existing mitigation financing schemes (e.g., Clean Development Mechanism) need to focus on projects that benefit poor and marginalized communities, including women. This should be true also for the Nationally Appropriate Mitigation Actions under the UNFCCC process (Schalatek 2009). At the very least, gender and social impact assessments need to be undertaken during programme and project design (UNDP 2011). At best, existing and future carbon financing possibilities should expand women's access to energy by encouraging small-scale projects (such as improved stoves) to qualify for the Clean Development Mechanism and by streamlining the application process to reduce the associated transactional costs.

Group exercise (see Appendix B: Learning tools)

Summary questions:

- **What is gender mainstreaming? How does the 'gender analytical tool' help mainstream gender perspectives into energy projects?**
- **What are clean energy technologies? Provide a few examples of clean energy technologies.**
- **Explain the benefits of clean energy technologies for women and the mitigation of climate change.**

VII Conclusion

Women, particularly among the poor and rural communities who do not have access to energy sources such as electricity, play a pivotal role in energy production, distribution and utilization. This is especially the case in Africa, where many countries are overly reliant on biomass as a source of energy, more so than most developing countries. Biomass collection is the primary responsibility of women; yet women are time-poor and overly exposed to health risks associated with energy production. Furthermore, climatic stresses on forest resources could potentially exacerbate this situation by forcing them to travel longer distances to fetch fuel wood.

Energy is key to development, poverty alleviation, and achievement of the MDGs. Access to better energy services can also improve women's socio-economic status, reducing the time and effort spent on household chores, giving them time to avail themselves of other social services such as education, and improving their health conditions. The introduction of cleaner, more efficient and renewables sources of energy can also bring new training, employment and entrepreneurial opportunities for women and men.

The empowerment of women and girls is necessary for energy development and energy security; gender perspectives need to be incorporated into energy projects, policy and planning to ensure their effectiveness and sustainability.

Energy policies need to be carefully designed in ways that benefit both women and men. All concerned — governments, civil society, the donor community, the private sector and individuals — should seek to understand the gender-differentiated needs and responsibilities of men and women, make gender-aware policy and programming decisions, and give women greater voice in decision-making at all levels.

Appendix A. Case studies

Case study 1

Photovoltaic project for rural electrification (Uganda)

Source: UNDP (2001).

The Uganda Photovoltaic Pilot Project for Rural Electrification (UPPPRE) was designed as a three-year pilot project, funded by UNDP/GEF, to promote the use of solar photovoltaic technology in Uganda. The project aimed at overcoming financial, social, and institutional barriers that hinder the widespread dissemination of this technology. The strategy was to establish viable financial and institutional mechanisms for offering solar photovoltaic systems on a commercial basis to households, businesses and communities.

The project, which started in 1998, focused on rural areas and areas on the outskirts of cities that were projected to remain off the national electric grid for at least five years. The project has led solar companies to install 576 solar home systems and 42 institutional systems. Some of the institutional systems have been installed in collaboration with the Ministry of Health and local government agencies to provide clinic lighting and vaccine refrigeration.

During the implementation stage, there were special efforts to encourage women entrepreneurs to purchase solar systems by offering credit through a women's bank. These efforts have not been very successful, however, because of high interest rates, short repayment schedules and collateral requirements.

Case study 2

Use of low cost fuel-efficient wood stoves by women in Daudu (Nigeria)

Source: NEST (2011).

The forests around the Daudu community that once provided the sole source of fuel wood for cooking are now in serious decline. The open wood stoves commonly used in the community consume a lot of wood, especially on windy days, when the wood burns faster. The need for fuel wood is increasing as the population rapidly grows, but the area around the community is so deforested that demand cannot be met. During a focus group discussion with staff from Greenwatch Initiative in 2010, some women in Daudu were asked what they thought could be done to

improve this situation. One woman suggested using closed chamber wood stoves, which would block the wind during cooking and therefore use less wood. Fifteen women of Daudu volunteered to try the new technique and, following a pilot test phase, unanimously agreed that little wood had been used and the food had cooked quickly. The low cost, fuel-efficient wood stoves are constructed by arranging either mud blocks or stones in a crescent shape, leaving an opening for the fuel wood. Only small openings are made so as to reduce heat loss from the stove. This cooking device takes the women about 30 minutes to construct and incurs no monetary cost, but requires only time and water to secure the joints. News of this low-cost stove is spreading quickly to neighbouring villages by women who see how effective the stove is and how much less fuel wood is needed for cooking. One woman confirmed that, while cooking with the new device, her food burned because she failed to check it soon enough, as she had thought that the cooking time would be the same as with the old open woodstoves. One important lesson learned, however, is that these stoves need to be kept dry and should not be built where they are exposed to rain, as they can be easily washed away.

Case study 3

Efficient biomass stoves (Kenya)

Source: UNDP (2011).

Over 95 percent of about 20,000 institutions (schools, colleges, hospitals) in Kenya use fuel wood as the main source of energy for cooking and heating. In 1996, with support from GEF's Small Grants Programme (SGP) implemented by UNDP, the Renewable Energy Technology Assistance Program (RETAP) was established to assist 20 schools in Mt. Kenya with planting wood lots in their schools and installing energy-efficient stoves in their kitchens. Each school used, on average, 160 tonnes of non-renewable wood per year. A revolving credit fund was successfully established (with $50,000 from SGP) to facilitate the purchase of the stoves, with loan repayments made within two years from the savings on firewood purchases.

Based on the success of the SGP pilot, the UNDP/GEF-funded programme Market Transformation for Efficient Biomass Stoves for Institutions and Medium-Scale Enterprises in Kenya was implemented from 2007 to 2010 with funding of $1 million (including an additional $200K for the revolving fund). Over four years, the project sold and installed approximately 1,500 institutional stoves to more than 1,000 schools, small- and medium-sized enterprises and households and planted 500,000 trees. The revolving credit facility has expanded four-fold and Rural Technology Enterprise (RTE) was spun off as a private sector company and registered Microfinance Industry (MFI) that fabricates and installs energy efficient stoves.

In 2010, RETAP, UNDP and United Nations World Food Programme (WFP) signed a memorandum of understanding to supply stoves to marginalized communities. This programme will be partly financed by the Japanese-supported Africa Adaptation programme implemented by UNDP, WFP and United Nations Industrial Development Organization and partly by the WFP school feeding programme. Building on lessons from the GEF Market Transformation project, the Government of Kenya is exploring options to scale up this approach by using a proposed allocation from the World Bank's Strategic Climate Fund's Scaling Up Renewable Energy Program (SREP) in Kenya.

The programme could also benefit from the support of the United Nations Capital Development Fund/UNDP Clean Start Programme, which aims to develop the capacity of macro-finance institutions to enter the low-pollution, energy-efficient stove market (2011). The preparation of a Programme of Activities (PoAs) to access carbon finance to further scale up the programme will also be considered. One of the greatest successes of the RTE/RETAP project has been its ability to gradually grow from a small-scale operation into a prominent operation specializing in fabricating and installing energy-efficient stoves. When an operation starts small, it is able to consolidate its gains and to learn from its mistakes and to adjust along the way (Matiru and Schaffler, 2011).

Case study 4

Sustainable energy solutions (Mauritius)

Source: UNDP (2011).

The Government of Mauritius has a long-term vision for transforming Mauritius into a sustainable island nation. An important part of this vision involves increasing the country's use of renewable energy and promoting energy efficiency (EE) measures, both of which would help to reduce dependence on fossil fuels and to achieve energy security. The Government has recently adopted its 'Long-Term Energy Strategy, 2009-2025,' which seeks to diversify the country's energy supply, improve energy efficiency and modernize the energy infrastructure.

UNDP is supporting the Government of Mauritius to implement its national energy strategy through a mix of assistance for the enactment of critical (upstream) policies and institutional structures, together with targeted initiatives to facilitate investments in renewable energy and EE measures at the community and household (downstream) levels. These initiatives demonstrate the effectiveness of a comprehensive and holistic approach to energy security through a combination of macro-, meso- and micro-level interventions.

Appendix B. Learning tools

Task no. 1: Sisters of the Planet (Martina) (plenary)

Learning objective: Understand the different ways in which gender roles in society determine the ways in which women experience the impacts of climate-induced resource scarcity

Sisters of the Planet - Martina (Uganda)
(video presentation)

10 minutes (video presentation)
20 minutes (group discussion and reflection)

Notes to the facilitator

- Encourage a discussion on the take-away message of the video presentation.
- Encourage a discussion on the question, "How does climate change impact men and women in energy production, distribution and consumption?"
- Encourage the participants to discuss experiences of the gender-energy nexus in their local contexts.

Task 2: Gender-proofing NAPAs (breakout groups and plenary)

Learning objective: Understand the tools for incorporating gender perspectives into gender projects

Gender analysis of energy projects prioritized in NAPAs

20 **minutes** (group breakout discussions);
15 **minutes** presentation of findings (three presentations of five minutes each);
20 **minutes** plenary discussions

NAPA Burundi (2007: 54-55) "Capacity Building to Promote Energy-Wood Saving Techniques"

NAPA Gambia (2007: 73-74) "Briquetting and Carbonization of Groundnut Shells"

NAPA Sierra Leone (2008: 58-60) "Promotion of the use of renewable energy (solar energy) and improvement of energy efficiency and conservation in Sierra Leone"

Notes to the facilitator

- Divide the participants into three groups; give each group one reading.
- Appoint a leader in each group.
- Ask the groups to use the information on the above-cited materials and do a gender analysis on the relevant projects and present a revised version after incorporating gender perspectives (encourage use of the **Gender Analytical Tool** discussed in Part VI).
- Ask the participants to discuss what they have learned from the assignment.

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