Energy, Gender, and Development

This article investigates the links between energy, gender, poverty, and development and recommends ways of including a gender perspective in energy planning. The purpose is to raise issues related to these links and recommend ways of tackling the vicious cycle of energy poverty.

Energy and development

Development depends upon access to energy services. Energy is critical to improving the well-being of the poor, who need it for cooking, light, the production of goods and services, heat, water, and transportation. Energy access affects quality of life by contributing to better public services, such as health care and education, and improving the possibilities for income generation and employment.

Energy services can protect the local and global environment by helping curb deforestation and reducing green house gas emissions. Energy's crucial role in enabling development makes the provision of adequate, affordable, and reliable energy services necessary to achieve the Millennium Development Goals (MDGs) (see Table 1) and the goals mentioned in the Johannesburg Plan of Implementation.[1]

Simply improving access to energy is not sufficient, however, because energy is not an end in itself but only a means to an end. The development of sustainable energy systems must be integrated into larger development programs.

Providing sustainable energy options ranks high on the international agenda, particularly energy derived from renewable sources and cleaner applications of fossil-based fuels. This was already the case at the World Summit on Sustainable Development in Johannesburg in 2002 and was reinforced in 2004 at the Bonn International Conference on Renewables in Germany and the World Conference on Energy

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Table 1. The Link Between Energy and the Millennium Development Goals

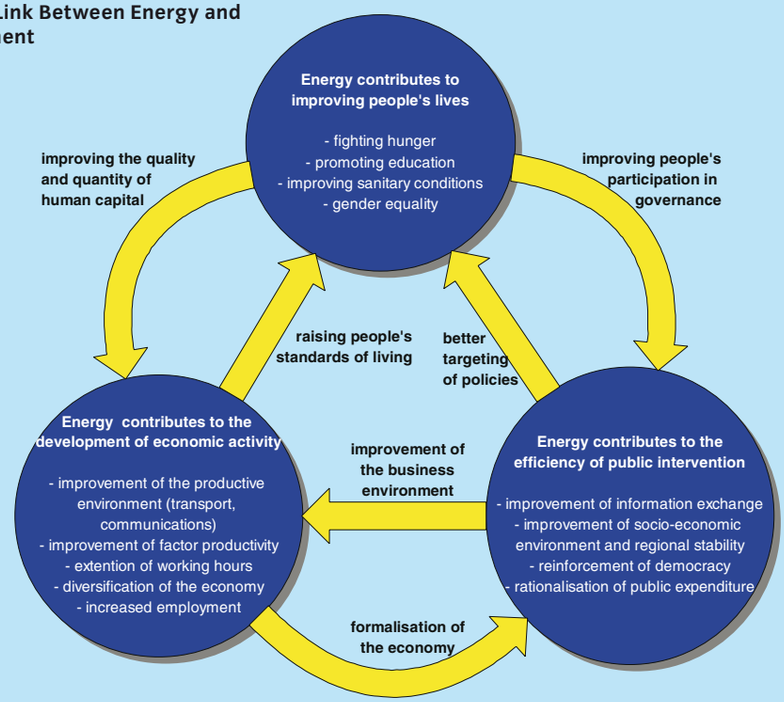
MDG	Role of energy
To halve extreme poverty	Access to energy services facilitates economic development – micro-enterprise, livelihood activities beyond daylight hours, locally owned businesses that create employment – and assists in bridging the "digital divide".
To reduce hunger and improve access to safe drinking water	Energy services can improve access to pumped drinking water and provide fuel for cooking the 95% of staple foods that need cooking before they can be consumed.
To reduce child and maternal mortality, and to reduce diseases	Energy is a key component of functioning health system, contributing, for example, to lighting operation theatres, refrigerating vaccines and other medicines, sterilising equipment, and providing transport to health clinics.
To promote gender equality and empowerment of women and To achieve universal primary education,	Energy Services reduce the time spent by women and children (especially girls) on basic survival activities (gathering firewood, fetching water. cooking, etc.); lighting permits home study, increases security, and enables the use of educational media and communications in school, including information and communication technologies (ICTs).
To ensure environmental sustainability	Improved energy efficiency and use of cleaner alternatives can help to achieve sustainable use of natural resources, as well as reduce emissions, which protects the local and global environment.

Source: United Kingdom Department for International Development. (2002). *Energy for the poor: Underpinning the Millennium Development Goals.* London: Author.

[1] U.N. Development Programme. (2005). *Achieving the Millennium Development Goals: The role of energy services: Case studies from Brazil, Mali and the Philippines*. New York: Author.

...The provision of adequate, affordable, and reliable energy services is necessary for achieving the MDGs.

Figure 1. Link Between Energy and Development



Source: OECD Development Centre and African Development Bank. (2004). *African economic outlook*. Paris: Authors.

for Development in The Netherlands. During the Bonn conference, several African governments, institutes, and organizations committed themselves to the introduction of renewable energy or a more efficient use of energy. Although the largest number of the energy-related commitments as pledged in Bonn originate in Europe (44 percent), Africa is the second largest initiator with 20 percent.[1]

Other international events such as the coming into force of the Kyoto Protocol in February 2005 and the current focus on Africa and climate change issues by the G8 and the European Union emphasize energy as a development tool. At the request of the G8 in 2005, the World Bank and the regional development banks (including the African Development Bank) developed a Clean Energy Investment Framework that focuses on increasing access to energy in Africa. The international attention to the U.N. Framework Convention on Climate Change conference in Bali in 2007 and the expressed urgency of tackling climate change through a follow-up protocol on the Kyoto Protocol forced attention to the energy issue as well.

Energy in Africa

More than 580 million people in Africa—two-thirds of the population of the continent—do not have access to electricity. Particularly in rural areas, electrification rates might be as low as 2 percent. On average, 92 percent of the rural population in Africa lives without electricity.

Energy-related air pollution poses major health and environmental risks. In sub-Saharan Africa, air pollution from wood fuels in inefficient stoves or open fires is responsible for 1,100 respiratory-related deaths per day, primarily of women and children. Women and children are the primary users of household energy and bear the burdens associated with the problems of access to reliable energy. Improving energy services for the poor will significantly improve

[2] Rankings of the commitments as laid down in the International Action Programme of the Bonn Renewables 2004 conference based on avoided CO_2 emissions show the commitments of the South African government and the Egyptian government at positions 10 and 11 respectively.

the living conditions of women and children.

Increasing dependence on fuel imports and the high and volatile price of fuel threatens the security of national energy supplies and drains the foreign exchange reserves of African countries. Fortunately Africa is endowed with vast unexploited renewable energy resources, including solar energy, wind energy, hydropower, biomass energy, and geothermal energy.

Energy and the poor

Poverty can be conceptualized in different ways, including economic (a personal income of less than $1 per day) and social (lack of access to adequate levels of food, water, clothing, shelter, sanitation, health care, education, and the like). Energy poverty can be defined as the absence of choice in procuring adequate, affordable, reliable, high-quality, safe, and environmentally benign energy services to support economic and human development.[3]

Energy is essential for sustaining people's livelihoods. At a basic level it provides cooked food, warm or boiled water, and warmth. Most poor people, particularly in sub-Saharan Africa, rely on biomass energy as the main source for basic energy services. In many areas an increasing shortage of biomass energy adds to the burden of women, who are generally responsible for collection of woody biomass. Although researchers, practitioners, and international organizations have repeatedly raised this issue, the link between energy and poverty is typically overlooked in energy planning. This can be attributed to the invisibility of the issue. Biomass energy, in most cases, is collected at zero monetary cost (mainly by women and children) and falls outside national energy statistics and energy balances.

The use of biomass energy by poor people is often a choice made from a narrow range of options. Limited cash prevents poor households from purchasing fuel-efficient appliances, resulting in higher energy consumption than that of less poor households. Energy-efficient stoves that use less wood and reduce associated collecting time are not generally available to poor people, leaving them with energy-inefficient, smoke-generating open fires and stoves and adding a health hazard to the burden of collecting fuel. Being forced to opt for lower first-cost options instead of lower life-cycle costs results in using precious cash on low-quality fuels, which are then used at low efficiency, reducing the family's ability to accumulate the financial resources needed to invest in strategies to improve their livelihoods. This vicious cycle of energy poverty must be broken.

Energy and gender

Energy policies and programs to improve the living conditions of poor families and communities must be targeted to reach those who are most in need. Of the approximately 1.3 billion people worldwide who live below the poverty line of the equivalent of $1 per day, 70 percent are women.

The gender dimensions of energy and poverty are evident in a number of ways. For example, women and girls are generally responsibility for energy provision related to kitchen activities in households. The time and effort

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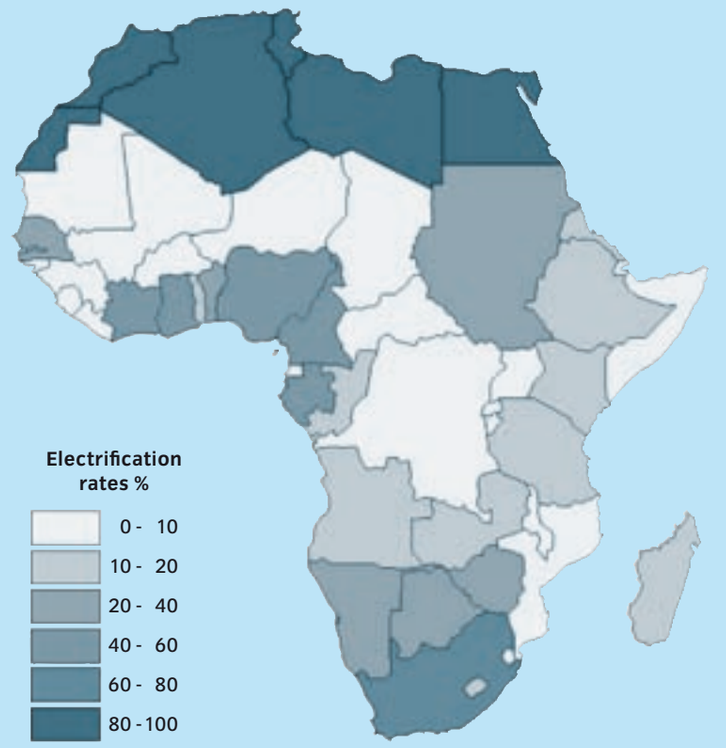
Figure 2. Electrification Rates



Source: Based on International Energy Agency. (2006). *World energy outlook*.

[3] Reddy, A.K.N. (2000). Energy and social issues, in *World Energy Assessment: The Challenge of Sustainability*. New York: U.N. Development Programme.

Table 2. Possibilities for Improving the Position of Women Through Energy

Energy Form	Women's needs and issues		
	Practical needs	Productive needs	Strategic needs
1.- Electricity	- pumping water: reducing need to haul and carry	- increase possibility of activities during evening hours	- make streets safer: allowing participation in other activities (e.g. evening classes and women's group meetings)
	- mills for grinding	- provide refrigeration for food production and sale	- open horizons through radio, TV and internet
	- lighting improves working conditions at home	- power for specialized enterprises such as hairdressing and internet cafes	
2.- Improved biomass (supply and conversion technology)	- improved health through better stoves	- more time for productive activities	- control of natural forests in community forestry management frameworks
	- less time and effort in gathering and carrying firewood	- lower cost of process heat for income generating activities	
3.- Mechanical	- milling and grinding	- increases variety of enterprises	- transport: allowing access to commercial and social/political opportunities
	- transport and portering of water and crops		

Source: Clancy, Joy S., Margaret Skutsch, and Simon Batchelor. (2003). *The gender-energy-poverty nexus: Finding the energy to address gender concerns in development.* Project report CNTR998521. London: UK Department for International Development, p. 14.

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spent by women and girls in gathering fuel limits their ability to engage in other activities, such as generating income or getting an education. Producing and processing food without mechanical or electrical equipment takes considerable time and effort as well. Cooking over poorly ventilated indoor fires poses serious health hazards to women and children.

The distribution of benefits from modern energy carriers shows distinct gender aspects. For example, electricity might substitute for traditional male tasks without addressing women's tasks. Income generation activities typically differ by gender, with women's enterprises or "informal sector" activities located at home. The types of enterprises run by women tend to rely more heavily on biomass fuels than do those of men.

When energy carriers must be purchased, however, men enter into the decision-making process, for example, in purchasing batteries for radios. Women and men have different perceptions about the benefits of energy. Men see the benefits of electricity in terms of leisure, quality of life, and education for their children, while women often see it as providing the means for reducing their workload, improving health, and reducing expenditures of time and money.

Moving out of energy poverty

Traditional energy planning has focused on energy source and technology. For poor families to benefit from improved access to energy, planning should focus on applications of energy or its end uses. By addressing energy as a service to satisfy energy needs, men's and women's requirements can be considered equally. Table 2 provides an overview of how energy can meet women's practical, productive, and strategic needs.

From past and current projects and programs, the U.N. Development Programme developed a number of lessons on gender and energy that should be considered to enhance energy development projects: [4]

- Empower women by involving them in project design and implementation. Because women are the primary users of energy equipment, involving them in energy projects makes good sense.
- Make policy environments supportive. Energy policies in many African countries do

[4] U.N. Development Programme. (2004). Gender & energy for sustainable development: A toolkit and resource guide. New York: Author.

not address rural energy issues related to domestic, agriculture, and small-scale, informal activities.

- Assess needs, including all activities of both men and women.
- Insist upon full participation of all intended beneficiaries, including women.
- Perform a financial analysis of the project proposals on a life-cycle-cost basis rather than a first-investment basis to lower operating and maintenance costs.
- Analyze income-generation activities and new opportunities for women. Women in African countries generally cannot afford to pay for new equipment unless it can be used to generate income.
- Improve financing and credit facilities to help alleviate the relative high up-front costs of small-scale, decentralized, energy-related equipment.
- Improve capacity building and training to strengthen the involvement of women at all levels of policy making, planning, and project development.
- Prefer environmentally sustainable energy options to traditional fossil-fuel-based alternatives. Environmentally sustainable options are safer and more efficient at the local level and have positive global effects.

Conclusions

To ensure more sustainable and gender-sensitive development, the current approach from a supply-side, energy-carrier focus must shift to an energy service delivery model that looks at end uses and end users. Sustainable development can be created only by investigating the energy requirements of both men and women. By adopting an approach that evaluates energy end uses, the traditional focus on only the provision of electricity will shift to include mechanical energy and thermal requirements and help poor people emerge from energy poverty.

Side-comments:

- Energy is critical in improving the well-being of the poor who need it for cooking, light, the production of goods and services, heat, water, and transportation.
- The provision of adequate, affordable, and reliable energy services is necessary for achieving the MDGs.
- Ninety-two percent of the rural population in Africa lives without electricity.
- Limited cash prevents poor households from emerging from the vicious cycle of energy poverty.
- Women and men have different perceptions of the benefits of energy.
- A shift is needed from the current supply-side, energy-carrier approach to an energy-service delivery model that looks at end uses and end users.

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