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Integrating Gender in Energy Provision
Case Study of Bangladesh

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Contents

Boxes

Figures

Tables

Acronyms

BPDB	Bangladesh Power Development Board
BRAC	Bangladesh Rural Advancement Committee
CGA	Country gender assessment
CIDA	Canadian International Development Agency
DC	Direct Current
DESA	Dhaka Electric Supply Authority
DFID	Department for International Development (United Kingdom)
ENERGIA	International Network on Gender and Sustainable Energy
ESMAP	Energy Sector Management Assistance Program
GAD	Gender and Development
GEF	Global Environment Facility
GEM	Gender Equality Mainstreaming
GQAL	Gender Quality Action Learning
GENES	La Red Centroamericana de Género en Energía Sostenible [Mesoamerican Network on Gender and Sustainable Energy]
GRESDA	Gender Responsive Renewable Energy Systems Development and Application
GTZ	German Agency for Technical Cooperation (*Deutsche Gesellschaft für Technische Zusammenarbeit*)
HDRC	Human Development Research Centre
IDA	International Development Association
IDCOL	Infrastructure Development Company Limited
IGA	Income Generation Activity
ITDG	Intermediate Technology Development Group
LPG	Liquid Petroleum Gas
M&E	Monitoring and Evaluation
MCP	Medically Competent Practitioner
MDGs	Millennium Development Goals
MEMR	Ministry of Energy and Mineral Resources
MFI	Microfinance Institution
MFP	Multifunctional Platform (Initiative)
NGO	Nongovernmental Organization
NRECA	National Rural Electric Cooperative Association
PBS	*Palli Bidyut Samity* (Rural Electricity Cooperative)
PO	Participating Organization
PRMGE	Poverty Reduction and Economic Management: Gender and Development
PSL	Prokaushali Sangsad Limited
PV	Photovoltaic
RE	Rural Electrification
REB	Rural Electrification Board

RERED	Rural Electrification and Renewable Energy Development
RET	Renewable Energy Technology
SAP	South Asia Partnership
SASEI	South Asia Energy and Infrastructure Unit, World Bank
SASES	South Asia Environment and Social Unit, World Bank
SEEMC	Socio-Economic Evaluation and Monitoring Cell
SEP	Solar Energy Program
SHS	Solar Home System
SIDA	Swedish International Development Agency
SIPA	School of International and Public Affairs (Columbia University)
Tk	Taka (Bangladeshi currency)
TMSS	Thengamara Mohila Sabuj Sangha
UNDP	United Nations Development Programme
UNIFEM	United Nations Development Fund For Women
USAID	United States Agency for International Development
WEG	Women's Energy Group
WID	Women in Development

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Preface

The World Bank's strategies for the energy sector (Fuel for Thought: An Environmental Strategy for the Energy Sector, World Bank, 1999) and gender mainstreaming (Integrating Gender into the World Bank's Work: A Strategy for Action, World Bank, 2002) stress the importance of working across sectors to respond to the priorities of its client countries. Both energy-related development interventions and gender equality goals are important for poverty reduction, sustainable development, and the attainment of the Millennium Development Goals. Because women and men face different needs and constraints as producers and users of energy services, taking these differences into consideration when designing and implementing energy programs can substantially enhance the sustainability and effectiveness of such programs.

The World Bank is increasingly recognizing the links between gender, energy, and development and is adopting innovative approaches to serve the energy needs of both women and men, notably through the World Bank–United Nations Development Programme Energy Sector Management Assistance Program (ESMAP), the Regional Program for the Traditional Energy Sector, and the Asia Alternative Energy Program. ESMAP's gender and energy work plan has involved research through grant-based pilots, generating knowledge about the gender-energy linkages and integrating gender into advisory services on national strategies.

The objectives of this study were to collect and analyze evidence to present a rationale for integrating gender into energy programs, examine the complexities involved, and propose some analytical tools, resources, methodologies, and guidelines that can assist in addressing them. The main findings are that frameworks for gender planning and their practical implications are not well understood, and coordination between energy and gender specialists is weak. Nevertheless, the report finds that direct and indirect benefits can and do accrue to women and society from integrating a gender dimension into energy-related interventions. Based on these findings, the team makes three key recommendations:

1. Enhance understanding of the direct benefits from addressing gender in energy programs through more sex-disaggregated data and analysis, gender-sensitive monitoring and evaluation systems, and targeting women for energy services.
2. Promote women's participation in energy activities by raising policymakers' and energy specialists' awareness of these links and providing education on energy technologies with the needs of female and male energy end users in mind.
3. Provide women with opportunities to gain technical and managerial knowledge and play key roles in commercial energy provision, and promote more decentralized systems of energy services provision to overcome entry barriers in the traditional energy sector.

Integrating gender issues into energy programs is complex and challenging because it involves social, technical, and policy considerations. The study findings are useful for World Bank operational staff, especially those working on energy, and regional and country gender coordinators, who may find the analytical information on gender and the energy sector helpful for the preparation of the country gender assessments that are required under the Bank's policy on gender and development (OP/BP 4.20).

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Executive Summary

1. Energy sector projects and women's empowerment are crucial to poverty reduction efforts, sustainable development, and achievement of the Millennium Development Goals (MDGs). Energy-related issues are often assumed to be gender neutral. However, energy scarcity can have disproportionately negative effects on women in the developing world. A large proportion of the world's poorest are women, and approximately 70 percent of the energy sources in developing countries come from biomass fuels, which are overwhelmingly the responsibility of women. Historically, this link has not been acknowledged in energy planning and projects, whether governmental or nongovernmental. Similarly, energy as a crucial input to other sectors, such as agriculture, has a myriad of implications when analyzed through a gendered lens with respect to specific times and places. Approaching energy planning in a manner that accounts for changing gender relations can do much to transform the situation of women and their relations to men.

2. The mission of the Columbia University School of International Public Affairs team was to work with the Energy Sector Management Assistance Program (ESMAP) and the Gender and Development anchor in the Poverty Reduction and Economic Management Network (PRMGE) to (a) collect and analyze evidence to present a strong rationale for integrating gender into the energy sector; (b) conduct an examination of energy projects in Bangladesh to learn lessons about best gender practices in this sector and how they might be scaled up, especially in the World Bank rural electrification project in the country; and (c) identify tools that could assist in creating a gender framework for the energy sector.

3. Much of the literature on gender and energy calls for a clear delineation of policy objectives for integrating gender in the energy sector by the implementing or funding institution. Generally, these rationales fall along three considerations: more efficient and effective program outcomes, more equitable distribution of benefits, increased gender equality, or all three. In practice, however, as supported by the case study in Bangladesh, gender considerations were conceptualized, not in the context of a planning or policy framework, but rather in relation to differentiated benefits received by men and women from improved energy services. In one instance, ESMAP's project in Char Montaz directly targeted women to become producers and suppliers of much-needed energy services. The project provided women with business and technical skills, which resulted in raising women's professional profile in the community and evidence of changing gender roles in the household.

4. The findings from the case study, along with the literature review, find the following overall implications of the importance of gender and energy in poverty reduction:

- The MDGs cannot be attained without strong emphasis on energy issues.
- Improved energy services have gender-differentiated consequences.
- Direct and indirect benefits accrue to women and society from integrating a gender dimension into energy-related development interventions.

5. Other key findings from the field research include:

- Although energy provision is gender neutral, energy sector organizations are male dominated.

- The social context and customary laws pose a challenge to empowerment of women and the move toward gender equality.
- Gender terminology and practical implications are misunderstood by both men and women.
- Although participatory methods are increasingly being applied in some rural electric cooperatives, there is no focus on gender analyses.
- Gender frameworks are not used for planning, implementation, and monitoring and evaluation.
- There is little evidence of gender training in the energy sector, including the Gender and Energy Network.
- Coordination among energy players, as well as between energy and gender specialists, is weak.
- Implementing agencies have limited capacity to deal with *both* gender and energy as an intersection.
- Greater awareness of gender issues is found within grassroots organizations.
- Partnering with a credible and tenured local institution(s) is key to sustainability.
- Microfinance institutions play an important role in increasing access to credit for development purposes and provide capacity building in business and managerial skills, especially for women.
- Some organizations have realized the potential of energy-related development planning through innovative projects.
- Combining energy services with income-generating activities offers the potential for greater economic benefit.
- Focus on customers' ability to pay for energy services marginalizes poorer segments of the population, especially women.
- The rural population, especially women, lacks technical knowledge of modern, decentralized energy services.
- Economic factors, external agents, and informed social networking influence gender relations and roles and have the potential to increase gender equality.

6. The examination of energy projects in Bangladesh revealed the critical opportunities provided for poverty reduction, given targeted energy interventions. Further, as detailed in this report by Dr. Abul Barkat's study, energy interventions had tremendous benefits for both men and women, demonstrating the importance of purposely gathering data that distinguishes along gender lines to assist with future planning. Finally, there was evidence that a recent effort, however minimal, has been undertaken to include women in various aspects of energy planning in Bangladesh. This is not to be equated with a gender approach—which may include, as one component, increasing the numbers and visibility of women in the sector—but it truly encompasses much more. A gender approach recognizes the socially constructed roles of men and women in public and private life. These roles and the relationships they maintain with specific development sectors (and the energy therein) are unique to each context. A gender approach, therefore, is a process and an understanding that guides the planning, implementation, and evaluation of any given program and project to enable the attainment of all three general objectives laid out above. Although seemingly abstract, frameworks exist to assist in concretizing the approach, just as different sorts of training help individuals develop the awareness necessary to successfully carry out the approach. To date, the University of Twente's

Gender in Energy Training Pack (Skutsch 1997) is the only tool specific to this sector; however, other organizations, such as the United Nations Development Programme, are currently in the process of developing similar implements.

7. In closing, the report provides some general recommendations, as well as more specific recommendations for scaling up gender integration in the larger-scale Rural Electrification and Renewable Energy Development project in Bangladesh, a short list of existing gender tools, references for further research, and contact information for well-known individuals who examine the gender and energy intersection.

1

Introduction

1.1 Energy sector projects and women's empowerment are crucial to poverty reduction efforts, sustainable development, and achievement of the Millennium Development Goals (MDGs). However, energy provision and promotion of gender equality are often pursued separately. Energy-related issues are often assumed to be gender neutral, yet energy scarcity can have disproportionately negative effects on poor women, the majority of whom are responsible for provision of household energy needs. Similarly, much work on gender fails to see how critical energy projects can be in transforming the situation of women and their relationships with men. Recent evidence shows that a gendered approach to development projects, energy included, can substantially improve the impact of these interventions on poverty reduction.

1.2 Currently, the most accepted approach for addressing gender inequality in any sector of the economy is gender mainstreaming. Key components of the strategy are promoting women's empowerment and gender equality. Concretely, this means understanding the various roles men and women maintain in a given society and allowing for the needs of both to be incorporated into policies, programs, project design, implementation, and monitoring and evaluation (M&E). Despite wide acceptance of this approach by many governments and donors at the policy level, huge discrepancies persist in planning and practice. According to Margaret Skutsch (1998), "…this is partly due to difficulties in translating policy into achievable objectives at the project level, which in itself is due to differences of opinion on what the motive is for including gender as a variable." This is especially true for the energy sector, because its intersection with gender has only recently been recognized as integral to development. Barbara Bamberger (2003) argues that "planners view energy as a technology-driven issue that is gender-neutral, that they do not recognize it as part of the poverty and economic development agenda."

1.3 The absence of a gender mainstreaming strategy in the energy sector can be attributed to a number of factors, including a focus within energy policies on economic performance and production, the technical and male-dominated nature of the energy sector, and the "invisibility" of benefits from energy. Nevertheless, a growing body of networks, organizations, and researchers have started to draw the attention of energy practitioners and policymakers to incorporation of the importance of gender concerns into energy work. The challenge remains how to learn from other gender and energy experiences, integrate the best practices, and develop sex-disaggregated data and tools to scale up policy and practice at the national level.

1.4 The mission of the Columbia University School of International Public Affairs team was to work with the Energy Sector Management Assistance Program (ESMAP) and the Gender and Development anchor in the Poverty Reduction and Economic Management Network to (a)

collect and analyze evidence to present a strong rationale for integrating gender into the energy sector; (b) conduct an examination of energy projects in Bangladesh to learn lessons about best gender practices in this sector and how they might be scaled up, especially in the World Bank rural electrification project in the country; and (c) identify tools that could assist in creating a gender framework for the energy sector.

2

Rationale for Incorporating Gender into the Energy Sector

2.1 Energy-related development interventions and women's empowerment are both recognized as crucial to poverty reduction efforts and sustainable development. These elements have been independently recognized, but the case for gender and energy as a nexus in poverty alleviation is less developed and has only recently gained substantial attention. Increasing the visibility of this intersection to a level that can affect policy and programs will have far-reaching implications for development and the reduction of poverty.

Energy and Poverty Reduction

2.2 Although energy is not explicitly cited in the MDGs, it is an essential element in reaching these goals and moving beyond them. Indeed, energy is often needed to perform any kind of task, and therefore improving energy services can ease those tasks and help provide better outcomes and outputs. Approached as a means and not an end, energy has contributed to reducing poverty, improving livelihoods, and opening opportunities. The analysis provided in Figure 1 outlines examples of the connection between each of the seven MDGs and energy.

2.3 The Human Development Research Centre (HDRC) conducted an impact assessment, led by Dr. Abul Barkat (2003), of the Rural Electrification (RE) Program in Bangladesh. The assessment provides an example that summarizes the multiple benefits deriving from increased access to modern energy services:

Box 1: The Case of Bangladesh

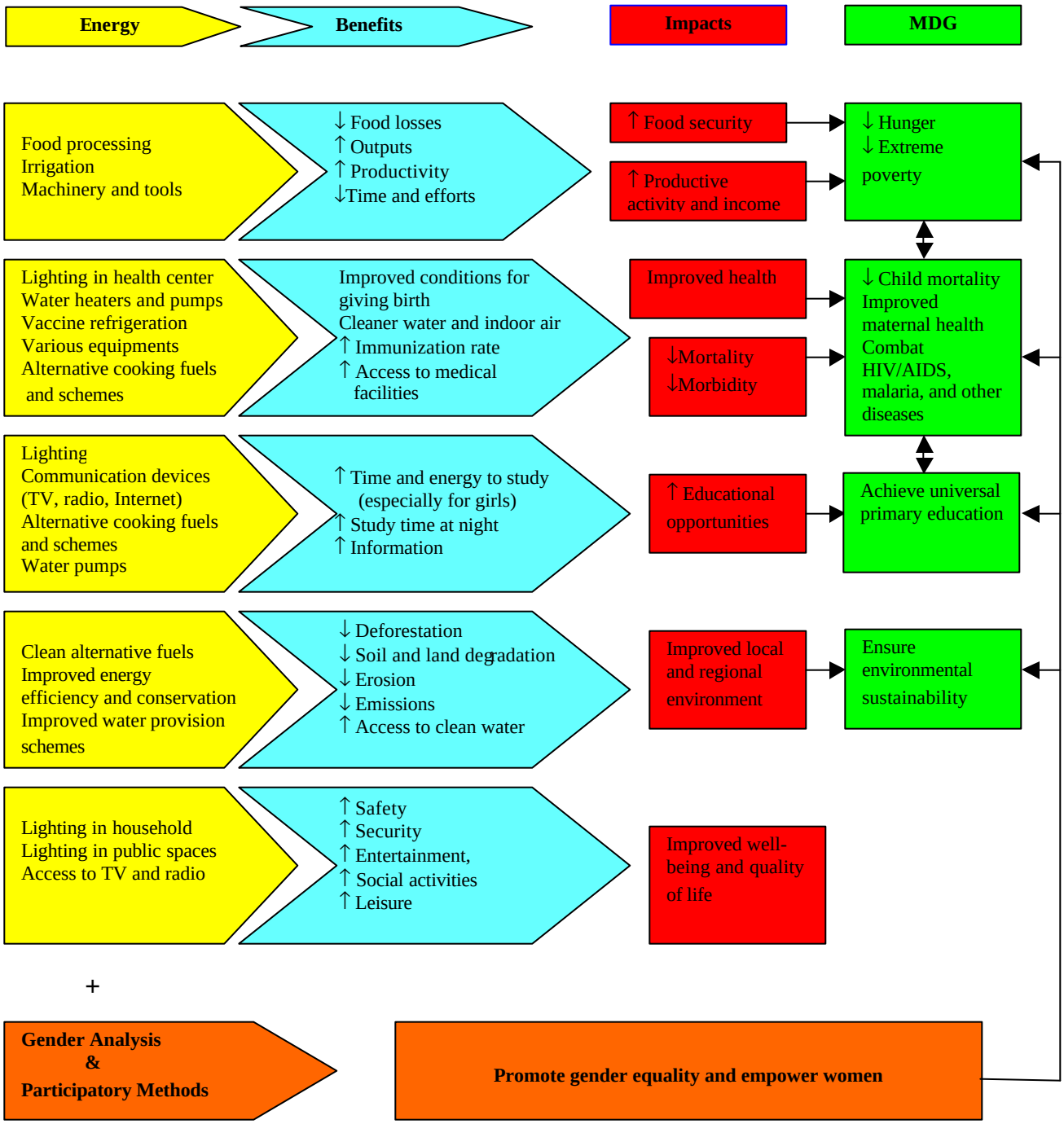
"Absolute poverty was most pronounced among populations in the households without electricity in electrified villages. About 40% of the population in electrified households is below the absolute poverty line (i.e., per capita consumption is less than 2122 k.cal per day). The corresponding figures for the population in non-electrified households of electrified villages is 51 percent, and that for the population of non-electrified villages is 43.4 percent. Compared to the national level of absolute poverty of 44.3 percent, the electrified household's level is less by 11 percent, implying that electricity makes a contribution in poverty reduction."

Abul Barkat (2003)

2.4 Household access to electricity, people's access to electricity for productive purposes (industry, irrigation and commercial activities), and availability of electricity for human development purposes (education and health facilities)— all contribute to economic development and poverty reduction. Economic poverty reduction impact mediated through electricity is evident in enhanced employment generation, increased income of the poor, increased savings, progressive pattern of food-non food expenditure, relative high share of education and health expenses, increased

influence over asset building, enhanced literacy, improved quality of education, relatively higher empowerment status of women, and better health status. Electricity's impact in reducing economic poverty and transforming human poverty produces a type of synergy, which is a powerful catalyst in accelerating the process of sustainable poverty reduction.

Figure 1 Potential Energy Contribution to the MDGs



Gender and Poverty Reduction

2.5 Development practitioners and academics widely accept the inextricable linkage between gender inequalities and the incidence of poverty. In the World Bank's policy paper, "Engendering Development: through Gender Equality in Rights, Resources, and Voice" (2001, p. 8), it is noted that:

> Gender inequalities impose large costs on the health and well being of men, women, and children, affects their ability to improve their lives…reduces productivity in farms and enterprises and thus lowers prospects for reducing poverty and ensuring economic progress…. [Further, it] weakens a country's governance—and thus the effectiveness of its development policies.

2.6 The United Nations Development Programme's *Human Development Report 1995* was one of the first to formally and systematically address gender disparities by outlining gaps between the sexes in education, health, economic opportunities, and political participation (see UNDP 2002b). This report made it obvious that poverty, as a measure of both income and other indicators of human well-being, falls disproportionately on the female population. In line with the arguments of Amartya Sen (1999), understanding gender roles is important in determining the underlying factors affecting an individual's capability set and the transferability of income to tangible elements of improved welfare.

2.7 The realization that women fair more poorly in practically every aspect of human development is not recent. It dates back to the late 1960s and early 1970s, and can be attributed to the civil rights and women's movements in mostly western countries, international currents in development, and women in the South themselves. At that time, it was assumed that by targeting women in development, projects would help in distributing benefits more equitably—in essence closing the gender gap and positively contributing to poverty alleviation. Although its contributions should not be negated, the WID approach fell short of meeting its overall objectives and prompted further analysis of why discrepancies and continued levels of poverty persisted despite these efforts.

2.8 This gender and development (GAD) approach, which builds on the Women in Development (WID) approach, yields better information on why and how disparities exist, providing a more complex and nuanced view of women's positions and the enabling environment to better structure policies, programs, and projects to account for both implicit and explicit barriers to development. The shift in terminology from women to gender indicates the acknowledgment that men's and women's roles are a product of social construction and not derived from inherent traits, which opened up the discourse to explore how women experience life differently according to other social constructions (for example, class and ethnicity). In addition, it was understood that what was socially constructed could likewise be deconstructed, namely that gender roles could and do change over time and space. In general, GAD focuses on practical needs and strategic interests simultaneously by unearthing root causes of inequality and

advocating for equality and empowerment.[1] It is a multipronged approach that seeks to improve welfare, consciously reduce inequality through empowerment, and make programs and projects more efficient and sustainable.

Gender, Energy, and Poverty Reduction: A Nexus

2.9 Many international donors, organizations, and even some governments have begun incorporating GAD approaches in their policies, programs, and projects. This has been achieved more fully in the health and education sectors; other sectors (such as water, agriculture, and industry) have produced literature on the matter, but little has been achieved thus far in operation. The absence of gender in policy and practice is most evident in the energy sector. This can be attributed to a number of factors at both the macro and micro levels. In the past, energy policies and international donor agencies have sought to increase the supply of energy, assuming this would propel economic development without considering demand or the local level context. This focus on economic growth patterns has accentuated the oversight of gender agendas in energy planning, because women's unpaid labor contribution to the gross domestic product is often inadequately accounted for. The energy sector is also technical in nature and is characteristically male dominated. Barbara Bamberger (2003), drawing on her experience in Kenya, explains that because energy is an input to other sectors, energy needs have been "invisible" and therefore ignored. This is also due to the absence or scarcity of sex-disaggregated data related to energy consumption and production. The gender divide with respect to energy needs becomes more obvious when one recognizes women's role within the household and beyond, such as in agriculture, food processing, services and manufacturing, microenterprises, and the local market and community.

2.10 Another common problem is that energy-related issues are often assumed to be gender neutral, with little or no mention of the different ways men and women produce, distribute, and use energy. According to Jyoti Parikh (1995), the energy sector counts as an input to a wide array of sectors, from transportation to agriculture. Many governments have formally acknowledged the different needs of society with regard to energy in the various sectors and have attempted to price the input accordingly (for example, incentives for rural versus urban investment or pricing of electricity for agricultural as opposed to industry). Unfortunately, gender has not been considered as a dimension that may require special policy intervention or differentiated pricing mechanisms. At best, position papers and energy policies point to the disproportionately negative effects cooking-related activities have on women.

2.11 Fortunately, the situation is changing thanks to the efforts of a growing body of women energy professionals, organizations, and networks. Further, more in-depth and interdisciplinary research has recently expanded knowledge of the benefits and opportunities of considering gender in energy provision. Parallel shifts in programs by multilateral and bilateral donors that seek to implement more demand- and service-driven energy programs have opened new opportunities to integrate gender into energy interventions. As Cecelski and Wakhungu (1995)

[1] The evolution of WID and GAD can be found in Beneria, Lourdes and Bisnath, Savitri, Gender and Development: Theoretical, Empirical and Practical Approaches, Northampton: Edward Elgar Publications, 2001; Lipinge, E., "Gender Concepts and Definitions", in Gender & Development, edited by Lipinge, Eunice and Williams, Marlene, 2000; GEM: http://www.genie.ids.ac.uk/gem/navigate.htm; DFID's gender manual: http://62.189.42.51/DFIDstage/Pubs/files/gender_manual.html

have pointed out, "Focusing on people, who must be empowered with know-how and access to resources, makes the issue of energy and development much more receptive to gender considerations."

2.12 It is better understood that women and men play different roles in society and that these roles are rooted in their respective social and cultural contexts. This is true across sectors and is maintained in the different needs and functions related to energy production and consumption. At the household level in particular, women in the developing world are the primary producers (up to 90 percent), suppliers, and users of energy.[2] Women are largely responsible for domestic duties (collecting fuel, fetching water, food processing, cooking, caring for children and the elderly), as well as engaging in community work and contributing to the productive sector (farming and other income generating activities, such as selling fuel). These are labor- and energy-intensive tasks. Yet the absence of gender considerations in the energy sector has often been equal to women's lack of involvement (compared with that of men) in energy provision. This leads to gender-related unequal access to energy services; untapped women's capabilities in promotion, maintenance, and management of energy systems; and inadequate energy interventions for energy needs.

2.13 Given the various roles women are responsible for in society, the rationale for mainstreaming gender in the energy sector follows the rationale for mainstreaming gender in development more generally. Moreover, it can be argued that development targets and poverty reduction goals cannot be fully realized without mainstreaming gender into the energy sector, which has a direct impact and a multiplier effect on agriculture, industry, health, education, and employment. Other aspects of improved energy services that reach women in particular include an increase in women's and children's security provided by light in and around the home or workplace during evening hours and reduction in time (ranging anywhere from two to eight hours a day) and effort needed to produce energy, which allows for more leisure time and access to leisure activities, such as watching television, listening to the radio, and attendance at community gatherings.

2.14 Therefore, remedying the unequal access to energy and addressing the low level of women's participation in energy planning are two key components in mainstreaming gender in the energy sector. Specifically, there are three ways in which the synergy of gender and energy benefits development and poverty reduction:

1. Direct benefits as a consequence of having access to improved energy services.
2. Benefits from women's participation in the planning, design, implementation, monitoring, and evaluation processes of energy-related projects.
3. Benefits from providing women with opportunities to gain technical knowledge and play a key role in commercial energy provision, including decentralized energy.

2.15 These categories need not be mutually exclusive. Often, elements from each can be found in various programs; however, disaggregating the benefits in this manner helps to clarify the potential impacts and the various pathways to pursuing them when there is conscious planning to

[2] 90 percent exemplified by cases such as Mali, Nicaragua and Honduras as stated in a presentation entitled "Renewable Energy, Gender and Energy Policy: Mali Case Study" by Cisse Dieneba Sow and in "Gender Concerns in Household Energy in Central America" by Rogerio Miranda.

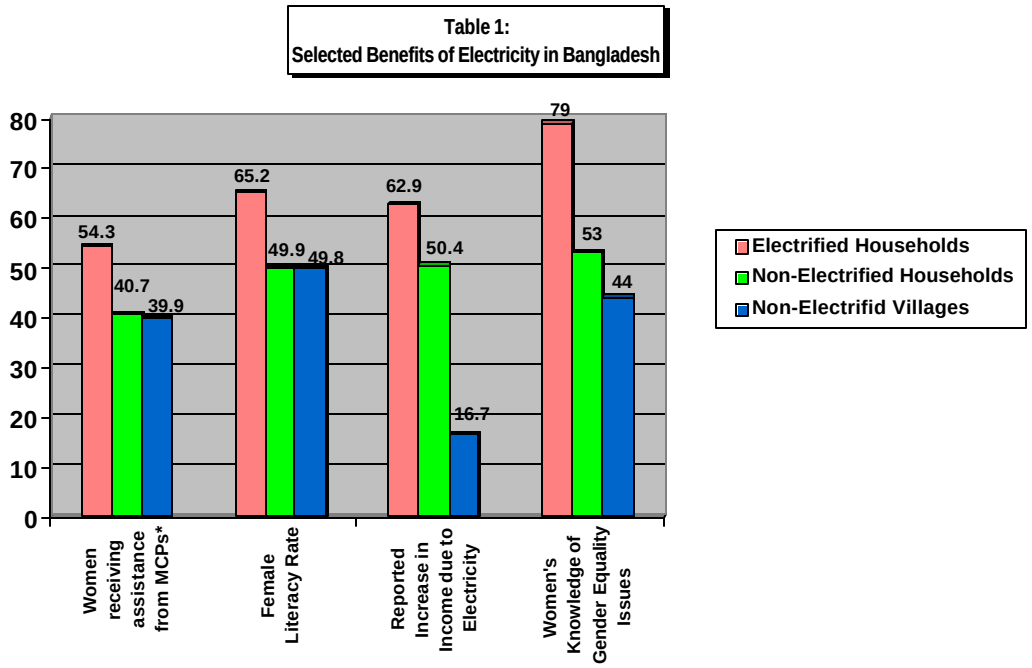
direct resources in a gender-sensitive way. Explicitly stating the objective(s) helps in determining the outcomes, which can be measured against gender-sensitive indicators that reflect those objectives.

Direct benefits as a consequence of improved energy services

2.16 One of the modern energy services that have directly benefited women is access to electricity. In a practical sense, electrification provides safety and security, access to media through television and radio, increased opportunities for time management, and improvement in quality of life. Multipliers of these benefits can extend to include, for example, decreased child mortality at birth; increased knowledge of health, rights, and resources; improvement in sanitary behaviors; and increased opportunities for income-generating activities or leisure. The HDRC's impact assessment of the RE Program in Bangladesh led by Dr. Abul Barkat (2003) extensively quantifies those benefits (see table 1).

2.17 For instance, Barkat's study points out that "people's exposure to electricity-driven media (most importantly, TV) matters much in human capital formation and in improving the knowledge base, which in turn, influences their education and health practices." In particular, the study highlights the role of television as an information vehicle for gender equality issues: "overall, as high as 64 percent of those women having knowledge in the electrified households reported TV as the main source of knowledge, the corresponding figure for TV was 34 percent in the non-electrified households and 19.1 percent in the non-electrified villages." The study also found that the gender divide in health and education has decreased: "in the electrified households, the annual average health expenditure for the males was 22 percent higher than the females, the corresponding health expenses were…116 percent higher for males than females in the households of non-electrified villages.… the male-female gap in literacy in electrified households has been reduced from about 25 percent to 16 percent."

Table 1: Selected Benefits of Electricity in Bangladesh



* MCP = Medically Competent Practitioner
Chart adapted from Rural Electrification and Poverty Reduction: Case of Bangladesh, Abul Barkat, March 2003.

2.18 Likewise, direct benefits from providing alternative cooking fuels (for example, liquid petroleum gas [LPG] or biodigesters) alleviate daily burdens and decrease illnesses from smoke inhalation and load carrying. Douglas F. Barnes (2002) found that in six Indian states, cooking represents 59–97 percent of total household energy use, and cooking smoke is estimated to be responsible for about 400,000–550,000 premature deaths annually. Similarly, Mieko Nishimizu, vice president of the South Asia Region World Bank office, noted (2002):

> In rural India, shifting from fuel wood to clean energy (like kerosene or LPG) halves the mortality rate for children under five…in the Gambia, too, children strapped to a mother's back over a smoky stove are found to be six times more likely to develop an acute respiratory tract infection. …in China, where low grade coal is used in many households, incidence of chronic lung disease and cancer found in tobacco-smoking men are found in non-smoking women.

2.19 Further, Ms. Ayele, leader of the Association of Former Women Fuel Wood Carriers, who spent nine years as a fuel wood gatherer in Ethiopia, explains, "The heavy loads and long distances we covered each day also had a debilitating impact on us: some of us have deformed spinal columns. The incidence of miscarriages among us fuel wood carriers was quite high"(UNDP 2002a).

2.20 Fuel wood use has other damaging consequences for women's security. As Ms. Ayele described, "It was a degrading life full of humiliation and shame. …we were often victims of rape and beatings by hoodlums who hid themselves in the forest" (UNDP 2002a). Certainly violence against women occurs in other circumstances, too. Lighting in and around the home as well as in public spaces (streetlights) increases security. In fact, this is often the first benefit from electricity cited by women themselves.[3]

2.21 Improved access to energy services has multidimensional economic impacts in general and impacts on economic poverty reduction specifically, though this may not be immediately visible. There are a handful of innovative projects that demonstrate the potential of using energy as a medium for reducing time spent performing existing economic activities while providing opportunities for new productive activities. For instance, the Multifunctional Platform (MFP) initiative launched in Mali in 1994 by the UNDP aims to support women's productive activities by designing a multiple-task machine powered by a simple diesel engine, which is owned and operated by women's associations to serve the community

Box 2: Increased Income in Char Montaz

In interviews with the Char Montaz community of Bangladesh, it was discovered that Nasir, a tailor, experienced an increase in income from Tk (taka) 12,000 (US$200) a month to Tk 33,000 (US$550) a month after his wife Runu entered the energy cooperative established by ESMAP's "Opportunity for Women in Renewable Energy Technology." This resulted directly from the extra income she was earning in combination with the extended business hours provided by their solar home system. Upon his wife's request, Nasir deposits Tk 3,500 (US$58) per year into a savings account for their only daughter's future. This money receives interest and cannot be withdrawn for 10 years.

Interview with Nasir Khan,
Prokaushali Sangsad Limited, Dhaka,
March 24, 2003

[3] As reported by Raihan Elahi (Interview, World Bank Dhaka office, March 16, 2003), by M. Fouzul Kabir Khan, (Interview, IDCOL Headquarters, March 17, 2003), by women interviews in Kapasia , Bangladesh (March 18, 2003), for instance.

(Sokona, *undated*). The MFP can power different tools (such as an oil press, cereal mill, or battery charger) and provide electricity for lighting, water pumping, refrigeration, irrigation, and electric tools. The MFP has had a considerable positive impact on both women and men, because both can hire the MFP services for their work (for example, carpentry). In one village, the MFP increased annual income per woman from about US$40 to US$100 and freed between two and six hours for each woman. According to the UNDP, the "introduction of a platform in a village has also induced higher levels of schooling for girls" (Sokona, *undated*).

2.22 Providing access to electricity has positive impacts on women in productive activities, as the HRDC impact assessment (Barkat 2003) demonstrated in Bangladesh:

> Women in electrified households compared to those in the non-electrified are more involved in income-generation activities (IGAs) including: poultry raising, livestock, cottage industry, sewing, and handicrafts (with better re-allocation of time for remunerative employment). As the household income increases and as the woman contributes to this increase and feels more empowered, more money is available for savings and the woman can participate in the decision to save.

2.23 The woman's contribution to the household income increases her bargaining powers within the household and thus can reduce her husband's control over the domestic resources (Curtis 1986). This in turn creates a more equitable partnership between husband and wife and the redefinition of housework. Two women from Char Montaz offered another example of changing gender relations: their husbands started to share household tasks when the women started working in the cooperative. One woman said, "While I am at work, my husband takes care of the baby" and "When I come back home from work, I prepare the lunch, but sometimes my husband has already done it." The husband of another woman shares the housework with his wife, which is made because his business is a small tailoring shop attached to their home. He admitted, "I realized how hard housework is only after starting to share it. In fact, I did not consider it work before that."[4] Further, income in a woman's hands, coupled with greater household decision making powers, tends to directly benefit her children and improve health and education in particular (Bruce and Lloyd 1997).

Benefits from women's participation in the planning, design, implementation, monitoring, and evaluation processes of energy projects and policies

2.24 Women are important energy consumers and producers, thus incorporating them at all levels of energy planning and implementation ensures that their special needs and priorities are taken into account. For instance, women's concerns include ensuring that lights are placed in the room that they use most; making sure that policies addressing fuel transport needs take into account household energy specificities, such as women gathering and carrying wood; integrating indoor pollution problems into health programs; and considering women's activities in the home, including cooking practices and preferences (U.S. Department of Energy and others 2000).

2.25 The introduction of solar cookers in many parts of the world as an alternative to traditional cooking methods is a familiar case in point. This technology is aimed at alleviating the cooking-related burdens of women—namely, reducing the excessive hours spent collecting

[4] Interviews with Shahida Gagi and Nasir Khan (husband of the cooperative treasurer, member of the community). PSL office, Dhaka (24/03/03).

fuelwood and carrying heavy loads. It also had other positive environmental spillovers—for example, decreasing the rate of deforestation and indoor air pollution. This was a seemingly good substitute, although failure associated with this intervention, among other alternative stove programs, has been documented (Wamukonya 2002, Skutsch 1998). The primary users were not consulted in the decisionmaking process or in the design processes, which resulted in avoidance of using the cookers. The primary reasons were twofold: the time of day required for cooking was not compatible with daily routines, and the taste of the food changed considerably. It is expected that women would have benefited more if the technologies had better suited their needs.

2.26 Conversely, using gender analytical frameworks and tools at all levels of program and project planning improves the welfare of women and the community, making for more efficient program and project outcomes by ensuring that the true needs and priorities of both men and women are met, minimizing any unexpected negative effects, and guaranteeing the proper allocation of resources. Gender analysis also serves to reveal other important information about how various roles and activities are interconnected. This is exemplified by the Energy for Sustainable Women Livelihoods: Gender Responsive Renewable Energy Systems Development and Application (GRESDA) project in Ghana that is sponsored by the United Nations Development Fund For Women (UNIFEM). The project improved the technological device for shea butter processing and increased women's business capacity.

2.27 In preparing the project, GRATIS, the implementing agency, consulted women's groups to help identify existing commercial activities where they could reduce the time women spent on arduous work by transferring adequate technology. They further consulted the women in the appraisal and adaptation of the new appliances. Meeting with husbands, chiefs, and elders was also essential for acceptance of the project. The advantages of improving energy efficiency in equipment and processing technologies enhanced food security of communities while providing women with opportunities to develop income-generating activities. Thus, one of the key lessons the UNDP drew from this case is that "approaching project design through focusing on activities women are already engaged in, like food processing and working with them to improve food security and current livelihoods, can promote acceptance of new techniques and technologies and lead to tangible results in rural communities" (UNDP 2001).

Box 3: GRESDA Shea Butter Processing Project in Ghana

Traditionally, women in Ghana produce shea butter, which is in high demand on the international market for cosmetics and chocolate production, but men market it—and their income is ten times higher than that of the primary producers. Further, the traditional processing technique that women engage in is labor and energy intensive and comprises seven long, arduous steps. Therefore, the production capacity is low. In addition, women are exposed to dangerous smoke and excessive heat. After assessing the situation thoroughly, the GRESDA Shea Butter Processing Project sought to improve the technological and business capacity of the women while working to improve their position within this lucrative sector. They introduced and tested an improved bridge press that reduced fuel and water use, as well as exposure to smoke and heat, and helped women market their products themselves to reach the international market directly. The outcomes of this project include a five percent increase in efficiency and a 200 percent increase in production capacity, a decrease in firewood and water use, higher consumer preference for the new methods, and increased income for the women.

UNDP (2001).

2.28 Similarly, the Intermediate Technology Development Group (ITDG) has worked with Masai women in Kenya to develop a simple smoke hood, which has decreased smoke exposure levels by up to 90 percent. (Before, the levels were more than 100 times the accepted international standard.) The ITDG extensively consulted with the Masai community to identify the social and health problems due to the smoke and the best solutions to these problems. The community was also involved in the design process and received training at the household level. The smoke hood has reduced the working day of women, and in some cases, now that smoke is no longer an issue, husbands have been known to participate in household duties. At the community level, there have been a reduction in drudgery consumption, improved health, and a better living environment, prompting others to acquire the smoke hood. "On a broader front, local leaders and government departments have been influenced by the success of the smoke hood project and have been encouraged to campaign for smoke reduction—and ITDG has shared this success with other institutions and organizations around the world" (IDTG).

Box 4: A Typical Day of a Masai Woman and Her Smoke Exposure

4:00 A.M.: Norparkuo wakes and starts the fire to make tea.
4:30 A.M.: She feeds the goats.
5:30 A.M.: She prepares the day's water cans and has another cup of tea.
6:00 A.M.: She loads the donkeys for the four-hour trek to the water pump.
10:00 A.M.: She waters the animals and starts filling the water cans.
Midday: She has loaded the donkeys with the heavy cans and is going back home.
4:00 P.M.: She lights the fire and has a rest.
6:00 P.M.: She has washed the dishes, prepared the vegetables, put the food in pots on the fire, and served her family a late lunch.
7:00 P.M.: She starts to collect firewood.
9:00 P.M.: She milks the goats again.
11:00 P.M.: The family eats supper (if they have it), and the children go to bed. At midnight, Norparkuo covers the still smoking fire and goes to sleep.

Strapped to her back as she works, Norparkuo's baby son spends hours indoors by the fire.

(*Source: IDTG, Smoke: The Killer in the Kitchen - Measuring the danger hour by hour* http://www.itdg.org.)

2.29 At the national policy level, women's participation has proved to be very scarce and challenging. The example of the Women's Energy Group in South Africa (UNDP 2001) highlights those challenges, but also suggests the potential for integrating women into energy policy design. After attending the National Energy Forum in 1993, several South African women created a network, the Women's Energy Group (WEG). One year later, they helped to draft a "green paper" that discussed national energy priorities, including a section on household energy use, and advocated policies targeting women's needs. Although their propositions were diluted in the 1998 white paper, WEG's efforts had managed to bring gender issues to the discussion of the national energy agenda. The white paper reflects a shift from exclusively supply-driven policies to considerations of demand-side approaches and social equity issues. Also, WEG was able to highlight women's needs—including safety and security, affordability, and accessibility—at a national energy workshop in 1999.

Benefits from providing women with opportunities to gain technical and managerial knowledge and play key roles in commercial energy provision, including decentralized energy provision.

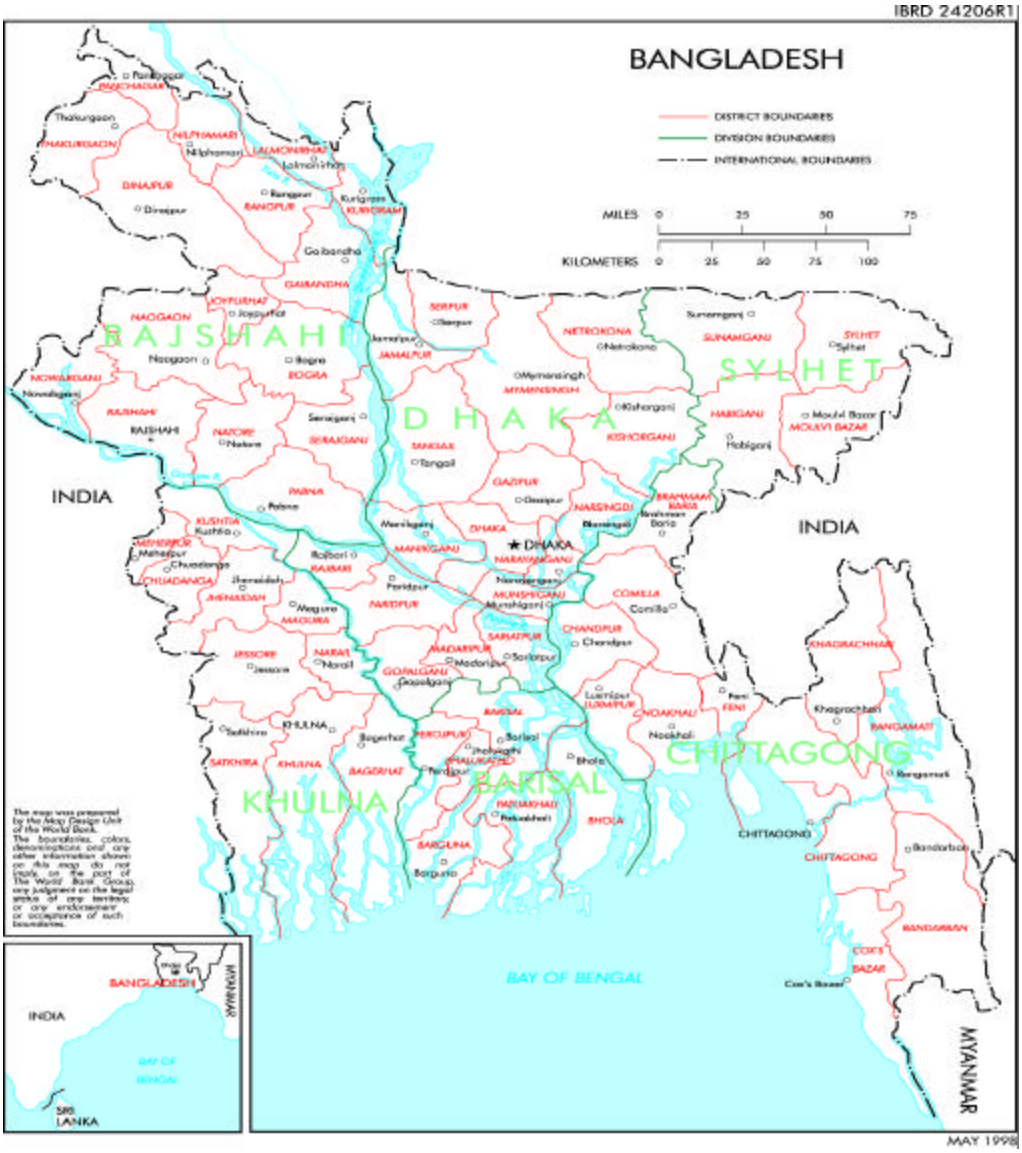
2.30 The third approach aims to enable women to gain technical knowledge and participate in providing commercial energy services, including off-grid energy solutions. Increasing women's role in decentralized energy services holds promise in enabling women to gain a place in public sphere activities while providing rural areas with an invaluable commodity and service. Many developing countries face constraints from lack of resources and capacity to extend grid services to the rural poor, many of whom are women, causing households to rely on often environmentally unsustainable resource extraction to meet their energy needs. This has spurred innovative ideas in decentralized energy provision and renewable energy technologies. These innovative arenas are only recently being more deeply explored, and they have the ability to meet women's practical and strategic needs. Projects such as the Char Montaz Project have attempted to do just that. Through the formation of a 33-member cooperative, rural women have engaged in the assembly, installation, maintenance, and marketing of direct current (DC) lamps and charge controllers powered by diesel generators and recently by photovoltaic (PV) systems. They have acquired increased decisionmaking power in the community, mobility, business and technical skills, confidence and aspiration, as well as all the direct benefits of electrification (World Bank Gender and Development Group 2002a). There is also potential for such intervention using other energy media, such as microhydroelectric, solar, and biogas. Increasing women's membership, in particular as managers and technicians alongside men, in energy cooperatives could lead to a more well-rounded understanding of energy-related needs in both the home and the community they serve.

2.31 At the centralized level, women's participation in commercial energy provision remains limited. However, interviews with female engineers at the Bangladesh Power Development Board (BPDB), the central agency for power production and distribution, suggest that once women have gained technical knowledge, they gain respect from their male peers and can be treated as equal to male engineers.[5] Providing women with the scientific and technological skills needed to engage in the technical aspects of the energy sector is thus an important part of mainstreaming gender issues in energy provision.

[5] Interviews with Nurun Nahar Begum, Sub-divisional engineer and Bithi Islam, assistant engineer. Bangladesh Power Development Board, Dhaka, March 24, 2003.

3

Case Study: Bangladesh



Box 5: Bangladesh Energy Sector: Present Constraints and Future Challenges

Bangladesh is a low-income-country with a population of more than 130 million people. The government of Bangladesh recognizes the energy sector as a main priority for rapid sustainable development and assigns 20 percent of its public sector investment to this sector. To increase poorer households' access to electricity, the government provides subsidies to families who consume the least amount of electricity. Despite the government's efforts, however, the situation in the power sector is precarious, especially because only 30 percent of the population has access to electricity. This situation is unlikely to improve in the near future because power supply plants are aging and are poorly maintained as capital investment trickles into new infrastructure and rapid population and output growth increase demand for energy at an annual rate of 8 percent.[6] Bangladesh has one of the lowest per capita rates of commercial energy consumption in the world—56 kilograms of oil equivalent—and 73 percent of energy consumption comes from biomass, which is mostly noncommercialized. Sex-disaggregated statistics on energy procurement and consumption are lacking,[7] but women are largely responsible for noncommercial activities; thus, it can be derived from these statistics that they are the main providers of energy in the country.

The Bangladesh energy sector is dominated by two state-owned companies, the BPDB and the Dhaka Energy Supply Authority (DESA), which provides electricity in the capital area. Even though these two parastatals account for nearly 75 percent of power sale, their operational and financial performance has been very low in the past. In contrast to these two government utilities, the rural electricity cooperatives or *Palli Bidyut Samities* (PBSs) provide services at higher levels of operational performance with greater efficiency. This is reflected in higher rates of collection, lower system losses, better billing, and greater financial management.

The rural electricity system consists of 67 independent, consumer-owned PBSs that are financed, organized, or managed by the Rural Electrification Board. The REB is an autonomous state agency established in 1977 to provide energy to the rural population of Bangladesh. Although PBSs connect about 350,000 to 400,000 households per year in the rural areas, only one household of four has access to the grid. Because women are confined to the house, the lack of domestic electricity has a heightened affect on them. The HDRC's impact assessment of the RE Program shows that women specifically benefits from access to electricity and the gender gap in electrified households has decreased, especially in regard to health and education. At the present rate of extension, it will take 30 years to achieve the government's target of universal electrification. A main challenge for the government is the lack of a large market in the rural areas. Despite high levels of demand, rural electrification is usually synonymous with low load. Most rural households connected to the grid use less than 40 kilowatt hours per month, usually only for lighting.

As a result of geographic constraints (isolation of rural areas, rivers) and poor load, grid extension is in most cases very expensive and might not even be economically efficient. In light of these constraints, some nongovernmental organizations (NGOs) have developed off-grid energy systems, such as solar home systems (SHSs), to reach isolated areas. Although the government of Bangladesh officially recognizes the importance of renewable energies for remote rural areas, it fails to understand the benefits these alternative technologies can offer the rural population.

3.1 The fieldwork confirms that gender is not mainstreamed in the Bangladesh energy sector, which suffers from a disconnection among the design, implementation, and evaluation of projects. From the Ministry of Energy and Mineral Resources to implementing agencies (including NGOs), the gender component is not clearly addressed.

3.2 Although the Ministry of Energy and Mineral Resources (MEMR) is not directly involved with the World Bank's Char Montaz project, the team met with the ministry's joint secretary to gather information regarding the integration of gender into government-funded energy projects. It was evident from this meeting that there is a need to deepen the understanding of gender issues at the government level, because gender concerns were most often mistakenly

[6] Interview with the Joint Secretary of the Ministry of Energy and Mineral Resources.

[7] Dr. Nurul Islam, Director of the Institute of Appropriate Technology at Bangladesh University of Engineering and Technology, informed us that data on gender disparity in electricity use does not currently exist.

equated with increasing the number of women in the sector or recognized only in the context of benefits derived by women from electrification. Although the MEMR joint secretary was generally aware of the benefits of energy for women's health, education, and income-generating activities, he emphasized that the ministry is more concerned with providing electricity for the general population than identifying specific gender needs. He did, however, mention that the Planning and Finance Committee (consisting of seven members from relevant governmental institutions, including the Ministry of Women and Children Affairs gives final approval for energy projects.

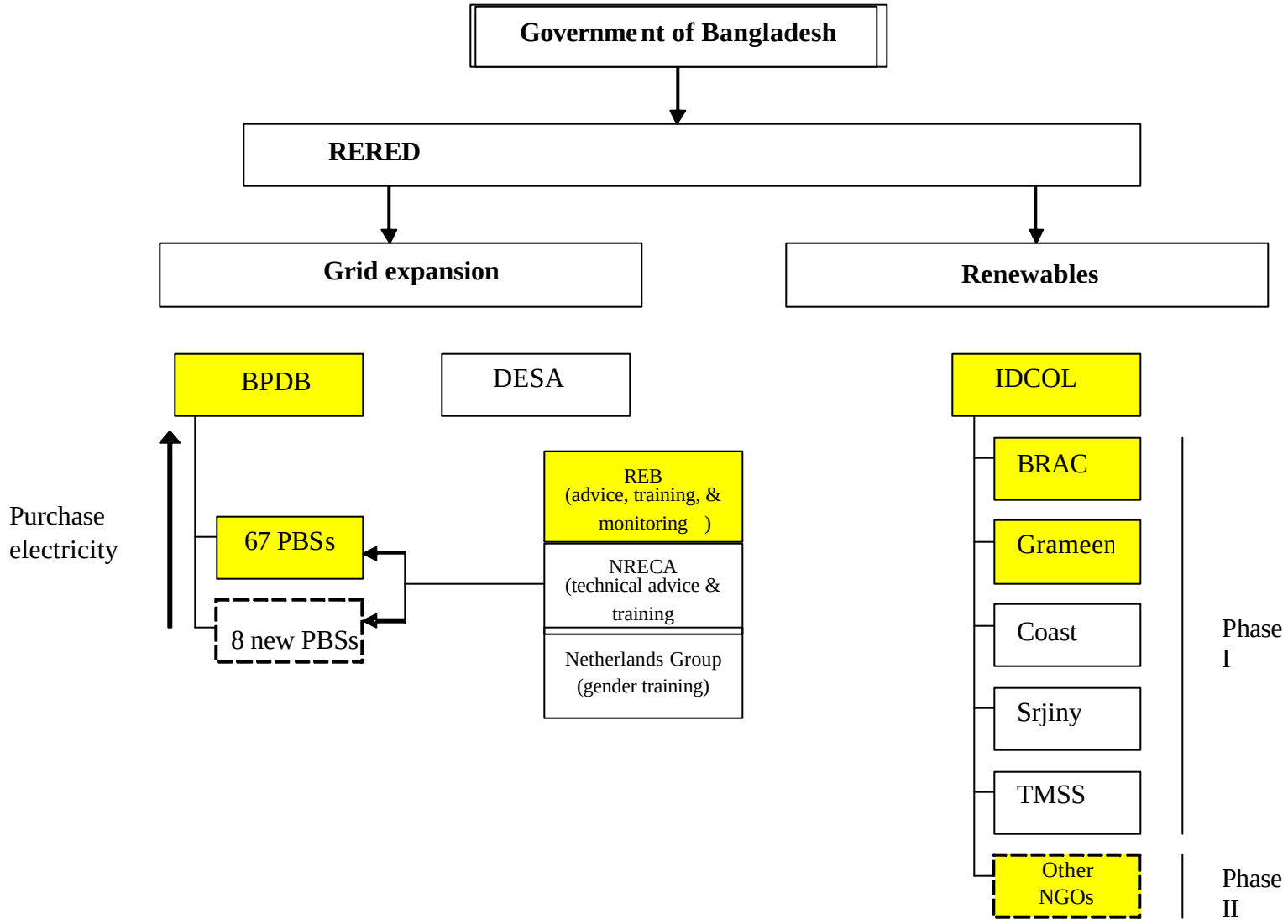
3.3 The review of project documents found two instances where women were included on a very general scale. One item from the M&E document measures whether women are "participating" in the project. This did not indicate, however, what level or quality of participation is considered. Second, there was a measurement of women's "benefits" from the project, again, with no specification of what benefits were derived as either a direct outcome or indirect impact. Both indicators lack the specificity needed to measure gender needs in a project. There also seemed to be a lack of awareness of the possibilities of maximizing benefits to the communities by undertaking gender analysis to reveal how energy inputs are used by both men and women in their various domestic and public roles, or how these interventions could be targeted to improve access to and productivity of interdependent sectors (such as industry and agriculture). Further, little attention was given to the biomass issue or its alternatives (for example, LPG), which account for the majority of fuel in the country and have severe implications for the health of women and children in particular. The MEMR's focus clearly rested with procurement of oil and gas.

3.4 A review of the approval process for the project proposal shows the MEMR consulting the Ministry of Women and Children Affairs in the design phase.[8] The Ministry reviews the proposed energy project's potential effects on women's welfare and provides feedback on improving the project design. The MEMR does not seem to have a mechanism to monitor gender issues during the project's implementation. Moreover, post-project evaluation procedures are inadequate. Description reports submitted after project completion address the extent of possibilities for women's employment and participation in development. However, some concerns arise regarding the capacity of the Implementation Monitoring and Evaluation Department in analyzing gender relations to evaluate the project on those terms. Overall, at the ministerial level, there seems to be no awareness of or interest in mainstreaming gender issues, which can in part be attributed to the lack of awareness of the benefits of such an approach to poverty reduction and development.

3.5 The team also studied the extent to which gender has been mainstreamed at the implementing agency level by examining the Bangladesh Rural Electricity and Renewable Energy Development (RERED) and Opportunity for Women in Renewable Energy Technology Utilization. Figure 2 illustrates the main actors in the RERED Project and may serve as a visual guide to the reader in following the assessment of several stakeholders. Figure 3 describes the purchase and financing options used in the project.

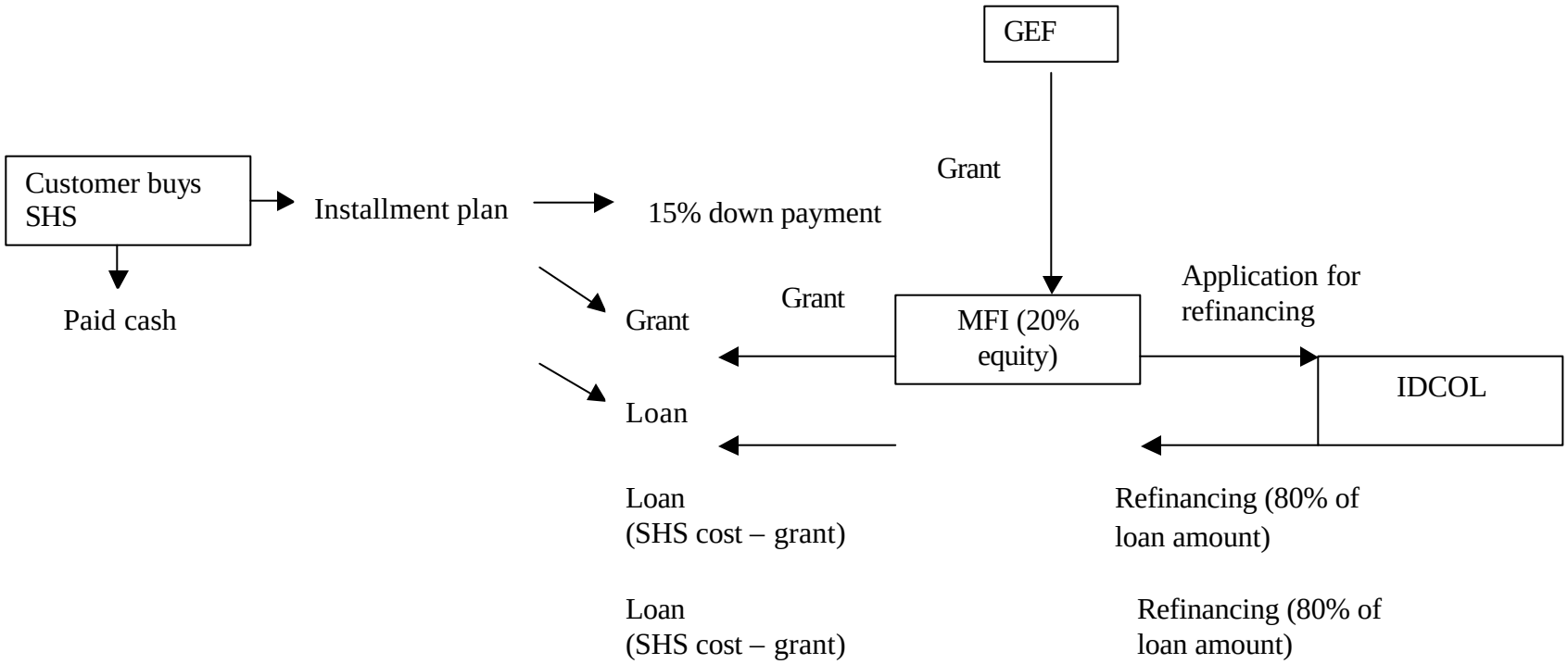
[8] The MWC could not accommodate a meeting with the team during the team's limited time in Bangladesh.

Figure 2: Main Actors in the RERED Project



Notes: BRAC Bangladesh Rural Advancement Committee; IDCOL Infrastructure Development Company Limited; NRECA National Rural Electric Cooperative Association. TMSS Thengamara Mohila Sabuj Sangha.

Figure 3 Solar Home System Purchase Options and Financing



Notes: GEF-Global Environment Facility; MFI- microfinance institution

Case Study: Rural Electrification and Renewable Energy Development Project

3.6 The objectives of the RERED Project are:

- Assist the REB in expanding the reach, capacity, and reliability of rural grids and to improve the operational and financial performance of the rural electricity cooperatives (PBSs)
- Promote the use of SHSs in rural areas unsuited for grid expansion
- Facilitate development of small power projects, using renewable energy where feasible, to be owned and operated by the private sector, NGOs, or community-based organizations
- Support initiatives in rural areas for productive use of electricity to increase household incomes and improve the delivery of services, including health and education.

3.7 The project is funded by an IDA loan of US$191 million and a grant from the Global Environment Facility (GEF). The REB will execute the grid extension portion and a portion of the SHS scheme, and the Infrastructure Development Company Limited (IDCOL) will execute the off-grid portion, including the major part of renewable energy.

3.8 Interviews with the institutions involved in both the grid extension and off-grid sections of the project gathered information on how gender might be integrated into the various levels of project planning, implementation, and decisionmaking, as well as in M&E. Participants were generally aware of the specific benefits of electricity for women; however, there was no evidence of gender analysis to explore the various roles, needs, and priorities of men and women or to disaggregate by sex the benefits derived from energy interventions. The team found a greater awareness of gender issues at the grassroots level, though little evidence was found in practice that this understanding was in any way embedded into the project design.

SolarHome

1

2

3

Kapasia, Bangladesh, March 2003. Photo 1: Before the SHS. Photos 2 and 3: After – this household uses the SHS for one television, one audio, and four lamps, with a discharge battery of 100 ampere-hour and one charge controller (capacity: four hours).

Grid electrification

3.9 *The REB.* The REB will receive a portion of the IDA credit (US$179.53 million) to assist in the expansion of rural electrification systems, intensification and rehabilitation of existing infrastructure, and support of a PBS-administered SHS program. Under the current program, the REB will be responsible for all rural load centers of fewer than three megawatts. So far, this organization has established 67 rural electricity cooperatives in the past 25 years and claims to expand the grid 40 kilometers per day. Average system loss ranges from 13 percent to 16 percent, and average payment collection is more than 98 percent.

3.10 The objectives of the REB are to provide electricity for all, ensure reliability and quality of supply at a reasonable price, and enhance poverty alleviation by extending rural access to electrification. To do this, it has set up rural electricity cooperatives that are each managed by an elected board of directors. The REB serves as merely an apex organization that functions as a quasi-regulator and financial manager of the PBSs and provides them with technical and institutional services as well.

3.11 The REB has no gender integration policies and has not implemented any gender mainstreaming activities within their organization to date. A recent study conducted by the HDRC (Barkat 2003), however, highlighted that women and men do indeed use and benefit differently from electricity access. This study provides strong evidence that gender concerns need to be further integrated into project design, so that positive social and economic impacts can be targeted more directly and measured. Since the publication of the report, a team from the government of the Netherlands has begun working with the REB to further develop a gender mainstreaming strategy for their operations.[9] These recent developments are an indication that studies providing evidence supporting this issue are critical to obtaining the necessary support for implementing an effective, gender-sensitive approach to providing energy to the poor.

3.12 *The PBSs.* The goal of each PBS is to achieve the highest level of sustainability and provide the greatest access to electricity for its members. Pricing is differentiated for residential, commercial, charitable organizations, irrigation, and industrial use. Preference is given to areas with greater demand: areas with various industrial and irrigation activities are given priority because they promise the greatest profit. The grid component of the RERED Project aims at providing access to approximately 700,000 households within five years.

3.13 Although the team did not obtain sex-disaggregated data, it was able to gather information on outreach strategies and human resources through a meeting with the General Manager of Dhaka PBS 1 and his staff. The PBS structure and its operations are standardized throughout the country, enabling the team to rely on this visit for information regarding gender issues within the PBSs in general.

3.14 Most of the PBS technical and managerial staff is male. The General Manager of Dhaka PBS 1 stated that women had the same opportunities as men for employment in all areas of the PBS.[10] The only department where is the billing department. Women are exclusively employed only in the billing department, a special feature in this program that is carried out in every PBS. Recently, a number of PBSs have embarked on a computerized billing program, and the female

[9] Interview with Ziaul Islam Choudhury, Chairman, REB. REB Headquarters, Dhaka, March 23, 2003.
[10] Interview with Engr. M.A. Sabur, General Manager, Dhaka PBS-1. Dhaka, March 23rd, 2003

employees in each such PBS were retrained, providing additional employment opportunities for these women.

3.15 The members of the PBS cooperatives are predominantly male. Although membership is open to all, it is usually the head of the household who registers as the member. During the visit to Dhaka PBS 1, the team found that applications from both men and women for electricity connections were being accepted, but there was little if any knowledge of household structures (for example, female-headed households), and the implications of this were acknowledged. Membership was predominantly determined by ability to pay and physical proximity to the nearest electrical tower. Members are required to come in person to make payments and register any complaints or suggestions for the cooperative. Mobility for women in Bangladeshi society is limited, and the overwhelming majority of these visits were made by men. Consequently, women's concerns, suggestions, and input regarding PBS service are not accounted for. The PBSs are designed to operate commercially, and such instruments as differentiated pricing structures for poorer, female-headed households are not used.

3.16 Within the PBS, members elect a board of 15 advisers. Because elected members invariably are male, an additional appointment of three "lady advisers" is made to each board. These advisers are intended to represent women's interests in PBS activities. They are, however, nonvoting members, and it is unclear how much influence they actually have on predominantly male boards. Such inclusion demonstrates a point of entry, but efforts to include women are nominal, with insufficient attention paid to underlying gender concerns.

3.17 The PBSs appear to be democratically run institutions, focusing on efficiency in management and service provision. At this point, the domination of the board of directors by men and the restriction of women advisers from voting indicate that women are not given the same opportunities as men. The PBSs and the REB claim that women are given equal opportunity, but supervisory and managerial positions are generally filled by males, in part because few rural women have lower educational opportunities and attainment than males.

Solar energy

3.18 *IDCOL.* IDCOL is in charge of the renewable energy component of this project. After REB financing, the remainder of the RERED credit (US$11.44 million) will be administered by IDCOL to operate a credit program for renewable energy. This program will extend credit to existing microfinance institutions (MFIs) or community organizations to refinance loans they make to households for the purchase of SHSs and other sources of renewable energy.

3.19 IDCOL is a government-owned, independently run corporation that invests primarily in large infrastructure projects. Its goal in this project is to electrify poor rural areas through appropriate financing. The objectives are to build the capacity of local participating organizations (POs) in the commercialization of the SHSs and provide affordable solar energy to the rural poor. The strategy includes the combination of a GEF grant subsidy of Tk 4,000 (US$70) per SHS (that is, 20 percent of the Tk 20,000 [US$345] initial cost of a system) and the remainder is refinanced by IDCOL. Although substantially discounted, the price of the system is still very high for rural families, whose average monthly income is Tk 2,000–3,000 (US$35–53). This makes the monthly payments (Tk 555–1,444, depending on the payment schedule) very difficult.

3.20 In addition to refinancing, IDCOL is in charge of monitoring the project. In an interview in Dhaka on March 17, 2003, IDCOL's executive director and chief executive officer, Dr. M. Fouzal Kabir Khan, stated that he had recently gone to three different sites where he visited homes that had recently purchased SHSs. He found that the benefits from solar energy were similar to those found in other studies, including increased safety and security—particularly for women—and increased study time for children. The monitoring currently in place is only for technical and service-related purposes and is not meant for gathering socioeconomic or gender-related information. It is a two-page form that tracks information on the proper installation of the SHS, maintenance problems, and loan payments. The project has introduced a Socio-Economic Evaluation and Monitoring Cell (SEEMC) to institutionalize new concepts and methodologies for monitoring the socio-economic and gender impacts of the project, following training from a consultant. The consultant's TORS require the development of guidelines and methodologies, including participatory assessments, that are sensitive to "enable REB to monitor, measure, and evaluate the impact of rural electrification on women and poverty among rural households."

3.21 In addition, there seemed to be little understanding of the poverty reduction potential in providing decentralized energy services to a larger audience (for example, marketplaces, clinics, educational institutions) or how individuals might be better incorporated into the process of accessing energy for their specific purposes. Again, at this level, the overriding concern was ability to pay. It was assumed that the POs responsible for implementation would adequately address gender concerns, because they were chosen for their activities centered on microcredit and women. Without underestimating the important contributions of microcredit or the targeting of women in the activities of these organizations, gender concepts are not wholly understood within the context of energy procurement, distribution, and use. This may be due to the energy practitioners' unawareness of how gender figures into energy provision for various needs and purposes and simultaneously may be due to gender specialists' lack of information about the energy sector and its operations.

3.22 In M&E, gender-sensitive indicators were not reflected in the available frameworks at the inception of the project. Aside from conceptual constraints in addressing gender concerns, the logistics of monitoring have proven to be difficult because of the high transportation costs in remote areas. In the interest of keeping costs down, IDCOL is hoping to involve local teachers to monitor project implementation in their communities. An agreement has been reached with the government so that IDCOL can employ teachers on an ad hoc basis to conduct monitoring only during vacation times, hence not detracting from their primary responsibility of teaching. In this way, IDCOL gets affordable access to local knowledge and expertise and provides additional income for rural educators, of which more than 50 percent are women. Furthermore, the scope of work for the SEEMC has been elaborated in such a way as to generate three key outputs: rural electrification monitoring indicators; a rural electrification baseline survey; and a rural electrification participatory assessment, each of which will focus on outlining the rural energy-related needs of poor women and men, and the impacts of electrification on women and men in poor households.

3.23 During the first phase, five POs were selected to install a part of 50,000 SHSs over the next five years. The interview with Dr. Khan revealed that more than 1,000 SHSs have been installed since December 30, 2002, far exceeding monthly targets.[11] At the current rate of growth,

[11] As of October 20, 2003 the total SHS installed is approximately 8,000 under the IDCOL program

he expects the five-year goal to be achieved in two and a half to three years. IDCOL aims to involve more NGOs and MFIs in the near future.

3.24 Prokaushali Sangsad Limited (PSL), the same firm that implemented the Char Montaz Project, assisted the World Bank with the selection of each PO, based on the organization's compliance with technical standards and financial history. All are MFIs, and each works primarily with female clients. According to Mohammad Iqbal of the World Bank, partnering with MFIs enables work with local organizations that are linked directly to the poor—and particularly to women. In the selection criteria, however, there is no specific reference to gender considerations.

3.25 *The Bangladesh Rural Advancement Committee (BRAC).* BRAC was established as a relief organization in 1972. Since then, it has grown into Bangladesh's largest development organization to alleviate poverty and empower the poor. BRAC's programs and projects are geographically dispersed and meet local needs in several sectors, including education, health care, agriculture, research, crafts, technology, publishing, and microcredit banking. More than 60 percent of Bangladesh's 86,000 villages have BRAC projects. The organization's projects are implemented under three major divisions: the Rural Development Program, Nonformal Education Program, and Health and Population Program. All three programs target women and girls.

3.26 Under the Rural Development Program, BRAC launched its integrated, multipurpose Solar Energy Program (SEP) for Sustainable Development in December 1997. Program staff visited Lotus Energy (Nepal) and Tata BP Solar India (Bangalore) for training. The program was piloted in 40 villages in Gazipur to gauge village interest. As interest in and demand for the PV systems grew, BRAC became an active seller of PV systems and began collaborating with Rahimafrooz Bangladesh Ltd., a leading battery manufacturing company in Bangladesh. The company imports solar panels from TATA BP Solar and manufactures solar batteries locally. Rahimafrooz has installed more than 4,187 SHSs (50 Wp equivalent) in different parts of the country with installed capacity of 209 kWp. Although Rahimafrooz installs the systems and handles major problems, BRAC trains local residents to repair minor PV system malfunctions such as loose connections. By doing so, BRAC has not only created a network of repairmen throughout the country, but also has provided people with the opportunity to gain skills and a source of (supplemental) income. By the end of 2000, BRAC's SEP had installed more than 500 PV systems, 1,000 biogas plants, 10 wind turbines, and 260 hot-box cookers.

3.27 According to report conducted by a renewable energy consultant to BRAC, the SEP staff carefully assesses the technology for cost advantage (competitive pricing, best product for least cost) and appropriateness (family needs, system size, geographic suitability, and so forth). As such, BRAC seeks suppliers who can deliver the best value to its customers. This has led to product improvement and ongoing dialogue between BRAC and its renewable energy partners (Kamal, 2001).

3.28 At US$350 per unit, purchasing a solar energy system is prohibitively expensive for the majority of people in Bangladesh. BRAC offers customers the option to pay all at once at installation or pay in installments through BRAC's Microcredit Program. In 2001, BRAC's microcredit network disbursed more than US$200 million and had a repayment rate over 98 percent.

3.29 BRAC plans to expand or implement projects with solar thermal systems, microhydroelectric generators, biogas electricity, and solar dryers in the future. Expansion projects include 5,000 hot-box cookers, the one lakh (100,000d) Solar Electrification Program to provide environmentally responsive electricity through PV systems, the BRAC solar energy complex to serve the energy needs of the program's headquarters, and 50,000 Biogas Plant Programs (with 10,000 by June 2004) to generate cooking and lighting fuel, as well as high-quality organic fertilizer and fish feed. (BRAC has collaborated with the Institute of Fuel Research and Development of Bangladesh to disseminate biogas plants).

3.30 *Grameen Shakti.* The Grameen Institution has 22 companies in various fields, such as telecommunications (Grameen Phone) or handicrafts (Grameen Shop). Grameen Shakti ("Grameen energy" or "Grameen empowerment") is the institution's renewable energy subsidiary, which focuses on extending PV systems, biogas, and gasification technology to rural areas. Grameen Shakti is currently installing 500 SHS units per month.

3.31 The general manager of Grameen Shakti has acknowledged the difficulty of reaching the poor, citing the high cost of an SHS as a primary deterrent. To reduce costs, Grameen is presently negotiating the price of the batteries and assessing the feasibility of producing solar charge controllers. Because of their specifications and sophisticated technology, solar panels are still imported from Germany. However, Grameen has started to produce some of the components locally and is saving Tk 2,000 per system. One drawback of importing is the devaluation of the taka and the strengthening of the euro.

3.32 *BRAC and Grameen Shakti – some observations.* Meetings with BRAC and Grameen Shakti indicated heightened awareness of women's lack of participation in the renewable energy program. This can be largely attributed to the fact that both MFIs tend to work primarily with women and are more aware of gender concerns than government agencies and the private sector. This explains the underlying assumption of the World Bank that women would naturally benefit from this project. The World Bank's Mohammad Iqbal emphasized that women's participation would be through MFIs and men's participation would be through the technical component of installation and maintenance. It is important to note, however, that just because MFI clients are women, the MFI itself is not necessarily run by women, nor is it certain that gender equity exists in the organization. Furthermore, at least in the case of Grameen, only 5 percent of SHS customers are actually Grameen borrowers—the rest are wealthier clients and mostly men.

3.33 It is also evident that even though the organizations, especially BRAC, have internalized the gender concept and processes, there is little evidence to suggest that this understanding has been transferred to their work in the solar program. BRAC is very well informed of the social and institutional nuances that shape the roles and relationships of men and women throughout the country, which in turn define the barriers and opportunities for development interventions more generally and can certainly provide insight to energy programs more specifically.

3.34 The economic viability of the program is clearly the driving factor behind this project. However, it is unlikely that this coincides with making this service affordable to everyone, including the very poor. Both Grameen and BRAC provide different types of payment programs. Grameen, much like the Char Montaz cooperative, is assembling some of the SHS components to reduce the cost of importing and create additional employment for the community. Despite this, data from both organizations show that the poorest clients are still unable to purchase an SHS. Grameen, for example, has sold 12,303 SHSs, but only 1,046 have been sold to women.

This is not to say that women are not benefiting from the remaining 11,257 Grameen systems. However, it does clearly indicate that the prices and payment plans are still outside the reach of the very poor, who are mostly women and children. The field visit to Gazipur also provided evidence of this. The homes and businesses visited by the team were noticeably better off than neighboring areas, where families owned more than two or three acres of land and some had purchased the system with remittances from the Middle East.

3.35 Rural women in Bangladesh are not actively engaged in the public sphere. The majority of shopkeepers and vendors are men. Most of the people congregating in the streets are men. It comes as no surprise, then, to find very few women working on the frontlines as energy program field staff. Many individuals interviewed during this study attribute the lack of female energy professionals to the idea that it is improper for a woman to climb poles or roofs, install or repair SHSs, or travel outside the immediate vicinity of her home.

3.36 Despite its Gender Quality Action Learning Program, gender has not been integrated fully into BRAC's SEP. Currently, all BRAC-SEP field staff are men. Traditional gender roles restrict women from taking these positions, because field staff are required to travel frequently. Although BRAC does provide transportation (several programs offer dedicated bicycles for business use), it is not common for women to travel alone or ride bicycles. There is evidence, however, that such social perceptions are changing in the areas were BRAC has been active.

3.37 Grameen has made it a goal to raise the number of female field staff. Grameen Shakti's SHS customers are not traditional Grameen borrowers, and the organization's general manager believes a more practical approach is needed to raise the number of female staff, including engineers and marketers. To that end, Grameen Shakti has embarked on an experimental program to facilitate women's entry into these positions. To date, two women have been employed as engineers in SHS maintenance. Although internal resistance to female engineers still exists, the organization is confident that stereotypes should change as more women enter the profession. Grameen Shakti has also implemented an SHS technician program for both boys and girls living in rural areas. These young trainees can earn Tk 1,200 (US$21) per month for part-time work in maintaining SHSs. After five years in this program, they will be eligible to become senior technicians. Finally, Grameen provides a Tk 4,000 (US$69) "Solar scholarship" based on academic achievement to girls.[12]

3.38 Although the RERED Project does not currently integrate gender concerns into its programming, it provided some positive lessons. Dr. Barkat's study (2003) of the REB project encourages greater awareness of electricity's benefits for both women and men. The partnerships between IDCOL and local MFIs also demonstrate an effort to encourage greater participation by and representation of local organizations with in-depth knowledge of community needs. For example, one of the partner organizations in the IDCOL program is a women's cooperative. However, they have not been able to propagate as many sales as the larger MFIs. Grameen's programs encourage women's participation in technical fields and also promise greater awareness of women's contributions to electrification and income generation. However, challenges still abound, especially with respect to understanding gender, not in the strict sense—as increasing the number of women in projects, but in grasping the relationships of men and

[12] Meeting with Dipa Barua, General Manager, Grameen Shakti. Grameen Bank Headquarters, Dhaka, March 17th, 2003.

women in their various functions to better inform RERED on how to more effectively and equitably meet the needs of the communities it serves. These issues are expected to be addressed by the SEEMC, which will concentrate on establishing evaluation research methods to document the of rural energy on social and economic conditions at the household level, with special emphasis on poor women.

Case Study: Opportunity for Women in Renewable Energy Technology Utilization in Bangladesh

3.39 The Opportunity for Women in Renewable Energy Technology Utilization in Bangladesh project began in 1999 with ESMAP's financial support. It has the potential to make an innovative case for involvement of women in energy projects, poverty reduction, increased access to energy, and private sector microenterprise involvement in an industry that is considered to be a public sector domain.

3.40 This project promotes three components that aim to reduce poverty, diffuse renewable energy technology (RET), and build capacity and skills among women. The first consists of enhancing "capacity within the government sector for incorporating the efficient use of RET, and involvement of women in future RET projects aimed at poverty reduction" (Huque, 2000). The second strategy will provide women in energy with technical skills to hold key positions in project implementation. Finally, the RET production program is run at the grassroots level by rural women.

3.41 The field research revealed that the first component of the project, institutional capacity building at the government level, has not yet been implemented. However, guidelines have been drafted by PSL and are under revision before their submission to the Energy Planning Committee.[13] The second component, the Gender and Energy Network, is operational.

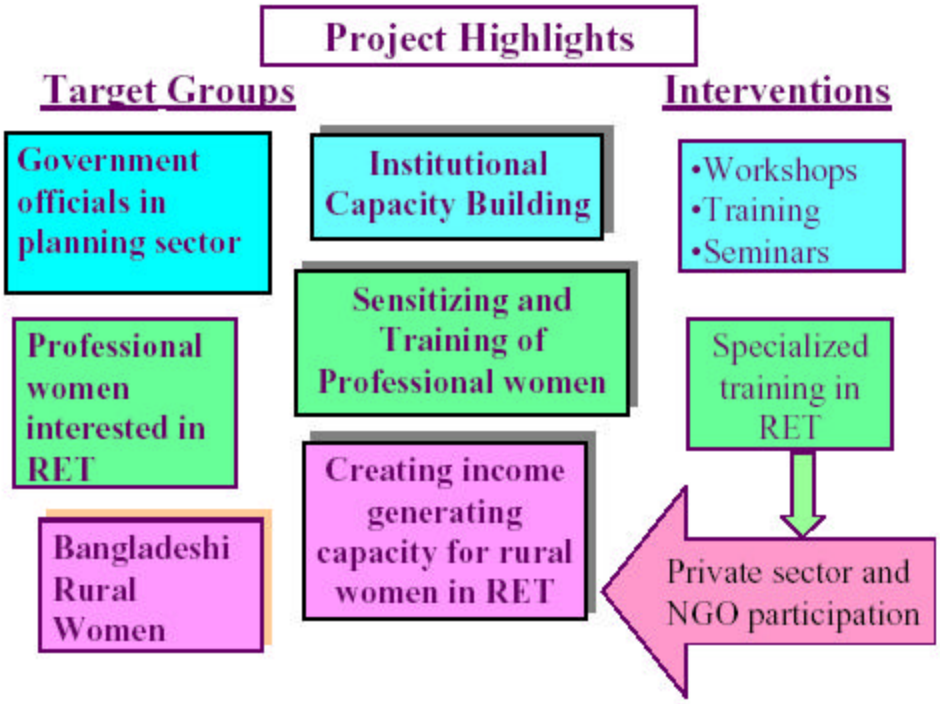
Gender and Energy Network

3.42 Gender and energy specialists emphasize the need for a strong network involving women in the energy sector to help build capacity, decrease the sense of isolation that women feel in a male-dominated industry, exchange information, and, above all, lobby the government to promote gender-sensitive programs (Cecelski 2001).

3.43 To understand and assess the Gender and Energy Network established by PSL as a strategy for achieving these goals, interviews were conducted with Asma Huque, the executive director of PSL; four network members, including two female teachers from a science college; and two professional women from the BPDB.

[13] This was not yet available for review during our visit to Dhaka..

Figure 4: Solar Home System Purchase Options and Financing



Source: Asma Huque, "Empowerment of Women Through Micro-Enterprise Development on Renewable Energy Technology."

3.44 The network is in its nascent stage, with only one training session conducted in October 2002. There is no regular exchange of ideas, and the network remains an occasional forum without any consistent follow-up or communication and interaction between its members. The Gender and Energy Network has no regular interaction with other existing networks and organizations within the Bangladesh renewable energy sector (BRAC, Grameen Shakti, or the Renewable Energy Information Network). Participation in the network by professional women is voluntary, and women participate during their leisure time. Formal networks seem to be a recent development in Bangladesh, and there remains a great need to improve their capacity and enhance information exchange.

3.45 Conversations with members clearly show a deep interest in the network and particularly in training on gender issues.[14] The interviewees stressed the importance of learning how to practically implement the lessons learned on gender. In view of this interest, members should receive further and consistent preparation on gender concerns to raise awareness and assist in diffusing these ideas through their formal and informal networks. There are two possibilities to achieve this outcome: either the network managing organization (PSL) should receive intensive preparation on gender and then pass that information on to the other network members through conferences, workshops, and informal discussions, or a gender training specialist can be hired to do it directly. To improve the flow of information, the network should also be expanded to include other partners.

[14] Interview with Professor Begum, Physics Professor, at the Maleka college, Dhaka (21/03/03).

3.46 Language issues also need to be taken into consideration when planning a training session.[15] The need for programs in the local language is particularly obvious when dealing with complex issues such as gender. The only gender training that has occurred so far through the PSL network was a talk, given in English, by a gender specialist from Winrock International during the workshop two years ago.

3.47 Furthermore, little effort has been made to publicize and develop the network. This is most likely due to the lack of knowledge and funding necessary to establish a proper network structure. Building capacity at the level of the implementing agency for such a project could be the key to a continuous exchange of knowledge and ideas. This is particularly relevant if one takes into account that the World Bank country office is willing to financially support the extension and diffusion of the network.[16]

3.48 The women in the BPDB have no role in the decisionmaking process not only because of cultural and social constraints, but also because they are not in the department that deals directly with implementation. To build leverage, the network should consider broadening and deepening its base through the inclusion of more women in the decisionmaking and implementation processes and the RET sector. Men should also be invited to the gender and energy trainings after the networks have increased comfort with gender issues, which would allow the concepts as they pertain to Bangladeshi society to be explored by men and women together.

Char Montaz Women's Cooperative

3.49 The last component of the project involved examining the women's cooperative in Char Montaz. Char Montaz is in southern Bangladesh, in the middle of the Bay of Bengal. There, 33 rural women have become energy entrepreneurs. Organized into a cooperative since 1999, these women are assembling and selling fluorescent lamps and charge controllers. They are also supervising the charging of batteries by male employees and establishing a sales network in neighboring islands. The modern lamps produced by the cooperative are replacing the traditional kerosene lamps, thus improving the quality of indoor lighting and increasing safety. These lamps are used in houses, fishing boats, shops, and mosques. Moreover, with the electric lamps, working hours have been extended, which allows household members to restructure their day and meet other needs (income-generating activities or leisure). The long-term target area of this project covers nearly 20,000 households within 300 square kilometers. Currently, the project uses a diesel generator for recharging batteries; it will be replaced with solar PV systems in the future. The project is entering a new phase in which the donors and the cooperative are looking for measures that can ensure sustainability. This includes the extension of production from lamps to charge controllers, for which a larger market exists.

3.50 There are several findings that can be useful for accomplishing gender integration in the energy sector. First, by using the niches created by new energy technologies, projects can address the gender barriers that exist in the supply of energy. Women tend to be invisible in the energy sector; the technical skills requirement, which has culturally been the realm of male professionals, makes it a male-dominated sector. However, this prevents half the population from

[15] Interview with Professor Begum, Physics Professor, at the Maleka college, Dhaka (21/03/03), and Interview with Ms. Nurun Nahar Begum, subdivisional engineer, and Ms. Bithi Islam, Assistant Engineer, at the BPDB headquarters, Dhaka (23/03/03).

[16] Meeting with Mohammad Iqbal, World Bank Energy Specialist, at the PSL office, Dhaka 25/03/03.

voicing their demands in the distribution of and access to one of the fundamental inputs in development. As a result, women are often considered as energy consumers but hardly ever as producers. If men dominate the traditional energy sector (that is, centralized services), new areas such as decentralized and renewable energies are niches that women can use to leverage themselves within the energy sector—precisely what this projects aims to do. The interviews revealed that women are producing a useful service, they are efficient in its production, and this has multiple positive secondary effects on education and community awareness. The positive secondary effects found are increased security (kerosene lamps are prone to causing fires), increased reading hours for the children and adults, and increased time spent helping children with homework. This undeniably has a positive effect on education and possibly even basic literacy. Finally, increased working hours allow for more productive activity, which raises the income of shop owners and household producers.

Box 6: Sustainability of the Women's Cooperative: Challenges and Possible Strategies

The cooperative is not yet economically viable or sustainable. In the present phase, ESMAP and the implementing agency are looking into different ways that would make this project a practicable long-term enterprise. Assuming it is one of the few examples of women directly involved in the production of commercial energy, its sustainability is paramount to demonstrate the long-term viability of integrating gender.

A major challenge for the cooperative's business is that they are currently producing under capacity. The marketing manager and the treasurer informed us that they are assembling 200 to 250 lamps per month, but they have a production capacity for 900 lamps; moreover, they have an accumulated inventory of 560 lamps. The cooperative has to be competitive and efficient before financial support can be withdrawn. To be competitive and sustain their work, the women will have to create a market for their products. Women in the management team are aware of their marketing problems. Two strategies seem available to them:

The first strategy involves the credit market on the surrounding islands. In the thousands of offshore islands in the Ganges delta, most people do not have access to energy. There is a captive market that needs to be developed. The women's cooperative already has four men promoting and selling their products to nearby islands. However, the women do not feel secure about microcredit and therefore are not willing to provide credit for lamps outside their community. Therefore, in the interests of expansion, a strong partnership has to be established with local MFIs in those other areas. The South Asian Partnership (SAP) and Coast, for example, could help the cooperative sell their products and target poorer potential consumers through microcredit.

The second strategy is the RERED Project of the government of Bangladesh, funded by the World Bank. Under the IDCOL scheme for this project, 50,000 SHSs will be delivered through microloans to rural households around the country. The women's cooperative in Char Montaz is currently producing DC lamps, charge controllers, and batteries. They could produce these three parts of the SHSs to be sold through the IDCOL scheme. According to Mohammad Iqbal, the only requirement for entering the market is meeting the technical standards.[17] The cooperative has gained international certifications of quality for its assembly work and could therefore sell their products to other institutions that engage in the business of solar home systems (for example, BRAC and Grameen). This said, there is ongoing competition for this market, especially from large POs such as Grameen Shakti that are already producing charge controllers for their SHSs. Despite this consideration and taking into account the small size of the cooperative, even a small share in the IDCOL scheme could be a satisfactory market. PSL is currently looking into this possibility.

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[17] Interview with Mohammad Iqbal. World Bank Office, Dhaka (16/03/03).

professionals, makes it a male-dominated sector. However, this prevents half the population from voicing their demands in the distribution of and access to one of the fundamental inputs in development. As a result, women are often considered as energy consumers but hardly ever as producers. If men dominate the traditional energy sector (that is, centralized services), new areas such as decentralized and renewable energies are niches that women can use to leverage themselves within the energy sector—precisely what this projects aims to do. The interviews revealed that women are producing a useful service, they are efficient in its production, and this has multiple positive secondary effects on education and community awareness. The positive secondary effects found are increased security (kerosene lamps are prone to causing fires), increased reading hours for the children and adults, and increased time spent helping children with homework. This undeniably has a positive effect on education and possibly even basic literacy. Finally, increased working hours allow for more productive activity, which raises the income of shop owners and household producers.

3.52 As service providers, women now bring income to their families. As a result, gender relations within the household appear to have changed. Within the household, some husbands now share housework responsibilities and acknowledge that housework is, indeed, work.[18] The recognition of women's work in the private sphere represents an important movement toward gender equality. In the community, the production and marketing of a useful good by women has modified gender roles. The island community was at first reluctant to accept women working outside the home. However, the village as a whole and stakeholders, such as the imam, became more supportive after reaping the benefits of improved lighting in houses and such public spaces as the mosque and the market. Even more encouraging, women are now able to have a voice in the community and participate in village meetings and decisions.

3.53 This project may have also modified savings behavior. Savings rates are usually low in rural areas of developing countries because most people live below the poverty line and economic vulnerability limits the scope for investment in the future. A cooperative member indicated that she and her husband opened a savings account in which they deposit money every month. The couple plans to use that money for their only daughter's education. The cooperative was a factor that reversed the effects of poverty on savings and planning for the future.

3.54 In part because of the wife's work at the cooperative, this household overcame the poverty cycle that affects millions of rural households around the world. This finding conveys implications for gender and energy. The husband claimed his spouse was the one in charge of the savings account and he knew little about it. This is an example of how women are taking on more decisionmaking within the household. These decisions generally tend to favor children. Therefore, improving women's income generation can have a positive impact on children's welfare.

3.55 Finally, the team found through its reviews and interviews that parallel income-generating activities are essential for sustainable improvement in the life of the cooperative's women. The three successful women interviewed each claim to have other income-generating activities in addition to their work in the cooperative. The need for income-generating activities highlights once again the importance of the involvement of a microcredit organization such as the SAP. The general secretary and the treasurer of the cooperative provide examples of this:

[18] Interview with Nasir Khan. PSL Office, Dhaka 24/03/03.

they are owners of a small tailoring shop that provides them with substantial income on top of their cooperative activities. These three women stated that the women who benefit the most from the cooperative were the ones that had other sources of income. The implementing agency has taken stock of this and is now looking at ways to provide women with other types of income-generating activities.

3.56 The Char Montaz Project has provided a unique opportunity for women to gain valuable skills and contribute a vital service to their communities. Interviews with the cooperative members as well as other community members revealed that traditional gender roles are changing, and women are now seen as contributors to family income and the local economy. Although challenges still exist for the cooperative, their approach should be recognized for its ability to create more equitable opportunities for women in renewable energy. And, with the right partnerships (SAP, for example), this method could contribute to a greater transformation of women's roles in renewable energy production throughout the country.

Box 7: Insufficient Managerial Skills: A Barrier to Scaling up and Building Local Capacity

The isolation of rural women living in remote areas creates barriers to the scaling up of projects because the women are unfamiliar with the outside world. A trained manager could both develop new markets and provide new opportunities for the women's cooperative to expand. Asma Huque, the director of PSL, suggested the possibility of contracting with an external person to become the manager of the cooperative and help with responsibilities that the members are not yet prepared to take. This includes the purchase of materials in Dhaka, strategic planning, and addressing the cooperative's other important needs. While a skilled manager for the women's cooperative is needed, it is also possible that there are people within the cooperative who are natural leaders with potential that needs only to be converted into capacity. To test the capacity of the women's cooperative to operate on its own, the team asked the treasurer and the marketing manager if they thought they could purchase the materials in Dhaka without external help. Runu Begum replied very confidently that they could, although she has been to Dhaka only three times in her life. However, the women did not know which were the important components in the lamps or the charge controller. The training of some members in advanced managerial skills can have a positive impact on the economic and social dynamics of the community. Ownership would be strengthened and competitiveness increased.

"How do I know which island is Char Montaz?"
"Just look for the lights. It's the only island with lights."

4

Selected Gender Approaches

4.1 The foregoing analysis indicates that scaling up gender mainstreaming in the energy sector at the policy and program levels requires a two-pronged approach. First, institutional capacity building focused on gender is key. Institutional capacity building and institutional change can be challenging. However, it is crucial to ensure that all members of the implementing organization have a sound understanding of the definition of gender and its implications at all levels of policy formulation and implementation. Gender mainstreaming is a way of thinking that requires flexibility in adapting to varying contexts that are themselves fluid. The BRAC Gender Quality Action Learning Program is one potentially helpful tool for such institutional capacity building.

4.2 Second, once capacity exists to do mainstreaming, tools must be available to actually develop programs and policies that will have the most success in achieving the goals of gender equality and poverty alleviation. One promising tool in this regard is the *Gender in Energy Training Pack* (Skutsch 1997) developed at the University of Twente, the Netherlands.

BRAC Gender Quality Action Learning Program

4.3 In 1995, BRAC's training division launched the Gender Quality Action Learning (GQAL) Program to improve gender relations among BRAC field staff and managers and assist them in addressing organizational and programmatic issues with gender in mind. Since then, more than 17,000 staff members and 850 area offices have received GQAL training.[19] By the completion of the first phase of the GQAL Program in June 2002, 60 percent of BRAC's regular staff had participated in the GQAL cycle. Upon satisfactory review of GQAL I by BRAC's research and evaluation division, the second phase began in January 2003 with the ambitious goal of training (and in some cases retraining) *all* of its 27,000 staff members and 1,650 area offices over the next four years. GQAL II will be funded entirely by BRAC,[20] which has set aside US$7 million (Tk 400 million) for this project. This investment reflects BRAC's commitment to improving gender relations within its organization.

4.4 BRAC's gender team comprises 30 full-time gender trainers, 4 of whom are based at BRAC's Dhaka offices. The head of this unit, Sadequr Rahman Khan, is a dynamic manager whose commitment to mainstreaming gender issues in his work is clearly evident. He spoke effusively about gender and how it permeates through every relationship and every issue. He

[19] GQAL covered 16,808 staff members and 872 Area Offices from 1995 to 2001.
[20] BRAC GQAL I was funded 50 percent by BRAC and 50 percent by donors.

views gender concerns as integral to human rights and justice. After listing the various forms of feminism, he conclusively announced that "feminism is not gender" and calls for an "evolutionary, not radical change" in gender relations. Formally trained as an engineer and agroeconomist, Mr. Khan credits the GQAL cycle, which he assisted in developing, with his becoming more aware and sensitive to gender issues.[21]

4.5 The GQAL Program's goals are to improve gender relations within BRAC and enhance the effectiveness of BRAC's programs involving the poor. To achieve these goals, the gender team has set the following objectives:

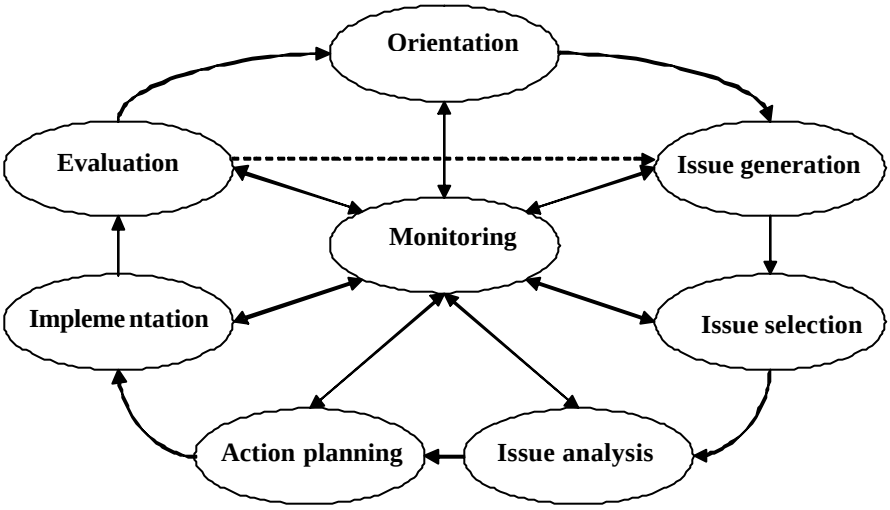
- Increase confidence and respect towards ability and competencies of women and reduce division of labor, which includes showing respect to others' opinions, work, and time;
- Improve competency of staff in participatory and democratic problem-solving and decision-making, assertiveness, management, and leadership by specifically focusing on women;
- Increase respectful cooperation, ownership, and accountability of women and men between peers, colleagues, supervisors, and program participants in BRAC;
- Increase staff capacity to plan, deliver, and monitor gender equitable programming and
- Improve understanding of BRAC goals (BRAC 1995).

4.6 Through the GQAL cycle, large numbers of BRAC staff are actively engaged in the process of defining gender equity and organizational issues in three areas in which they are challenged to effect change: individual attitudes and behaviors, program results, and organizational systems. The interactive learning process incorporates training tools to encourage active participation and eventually lead to a better understanding of gender issues in the staff members' area offices and their own personal lives. BRAC's gender specialists go to the area offices to conduct training, and attendance is mandatory for every member of an area office—supervisors and junior officers, men and women, all sit together to undergo training.

4.7 The GQAL cycle takes one year to complete and begins with a one-month, three-session orientation that covers the conceptual foundations of gender. Definitions, perceptions, and assumptions about men and women's roles are expressed. Two weeks after the conclusion of the orientation, the staff and the gender specialist meet to generate a list of concerns they have with the area office. These sensitive issues are handled anonymously: each staff member submits his or her concerns on a piece of paper that the gender trainer collects, reviews, and then destroys. A list of the issues raised is then posted on the bulletin board for everyone to review. In the issue selection stage, the entire group votes on one issue to tackle. Once chosen, the issue is analyzed using web charts and cause analysis matrices. Through issue analysis, staff members begin to understand the complicated linkages of the topic selected. This analysis is followed by the action planning phase, in which the group outlines steps to ameliorate the highlighted concern. Once roles and responsibilities are assigned, staff members begin to implement their proposed solution or change. The implementation phase usually takes nine months. At the end of the GQAL cycle, an evaluation is conducted to review the process and outcomes. Also, because the GQAL Program is an ongoing structural intervention, monitoring is incorporated at every step.

[21] Meeting with Sadequr Rahman Khan, (Program Manager), March 25, 2003.

Figure 5:BRAC GQAL Cycle



Source: BRAC Gender Quality Action Learning Program. 1995. *Technical Manual: An Action-Learning Approach to Gender and Organizational Change*. Dhaka.

4.8 Since implementation of the GQAL Program, BRAC staff members have reported improved working relationships, more open communication, greater work efficiency through mutual support, and increased transparency at their offices or divisions. The GQAL Program's success can be attributed to field-based, regularly monitored intervention conducted by well-trained facilitators. In January 2001, BRAC extended the GQAL Program on a two-year pilot basis to village organizations in three regions.[22] Although a formal evaluation will not be undertaken until early in 2004, initial reports suggest improved gender relations at the program beneficiary level as a result of the BRAC–village organizations pilot. BRAC has also conducted training for other organizations, including United Nations agencies.[23]

Gender in Energy Training Pack, University of Twente

4.9 To date, the only existing tool on gender and energy is the University of Twente's *Gender in Energy Training Pack* by Margaret Skutsch. The training pack was released in 1997, and an updated version is due out sometime in the near future. The training pack puts forward seven modules for incorporating gender concerns into energy programs and projects, targeting energy planners and practitioners or those responsible for design and implementation. It lays out two rationales for incorporating gender: project efficiency and equity—which, once identified by the planning agency, will guide the process and inform the tools that will be used toward those end. Ideally, finding a way to accommodate both rationales in operation is desirable, both for purposes of sustainability and for increased impacts on poverty reduction.

[22] The BRAC-VO pilot phase began in January 2001 and will conclude in December 2003. BRAC will conduct an evaluation of the pilot project to assess its affects in the target areas.
[23] BRAC publishes a bulletin of courses and sample curricula that can be modified to tailor an organization's needs.

4.10 To begin, interactive exercises and case study discussions are undertaken to understand the conceptual differences between women and gender, highlight the lack of gender analysis in energy policies, and identify existing problems emanating from the lack of gender considerations. The manual then moves into ways of paying more attention to gender-sensitive planning methods that should contribute to better planning and management and, ultimately, more successful projects (Skutsch 1997). Specifically, it cites:

- Increased attention to gender through consultations;
- Systematic collection of gender-based data [on energy production, distribution, and consumption];
- Acknowledgment of specific gender interests [in energy];
- Identification of gender priorities [in energy]; and
- Looking for duality in [energy] solutions.

4.11 In planning for equity, it is essential to:

- Highlight problems identified by the women;
- Incorporate gender strategic interests in [energy program] goal statements;
- Increase women's participation in decisionmaking bodies;
- Practice positive discrimination in resource allocation; and
- Increase presence of women in the energy professions (Skutsch 1997).

4.12 Gender analytical tools and checklists have been developed to assist practitioners in development projects in general, though full adaptation of these tools for the energy sector is still wanting. However, the existing tools help in identifying the visible and underlying contexts within which work is done. Both quantitative information, such as existing resources, and qualitative information, such as who controls those resources and under which circumstances, can be derived from these tools. Coupling this information with extensive participatory processes provides a comprehensive understanding of economic, social, cultural, and political constraints and opportunities that can be consciously accounted for in policy and programming. Various tools are described in the training pack for field-level use, including in-depth household interviews, gender-disaggregated calendars, focus group discussions, resource maps of households, and Venn diagrams. Such information should be gathered through participatory methods, such as Participatory Rural Appraisal or the methods evolving out of Rehka Dayal's work (2002).

Box 8: Some Well-Known Gender Frameworks

The Harvard Analytical Framework
The Gender Analysis Matrix
Using stories to develop understanding
Force field Analysis
Capabilities and Vulnerabilities Analysis
Gender Needs Assessment (Practical Needs and Strategic Interests)

Source: Skutsch (1997).

4.13 Issues surrounding design of gender in planning frameworks are discussed in addition to the very important overview of making institutions themselves gender sensitive. Overall, the training pack is a useful step in identifying existing frameworks and tools with some discussion of how they can be applied to the energy sector. Building on this knowledge and developing gender- and energy-specific frameworks, tools, and indicators will serve to complement enthusiastic, well-trained practitioners in their respective implementing institutions.

5

Findings and Conclusions

5.1 Following are the key findings from the Bangladesh case study:

- Energy supply interventions target all households and are gender neutral, and no effort is made to provide any special benefits to poor or marginalized groups, such as female-headed households.
- Energy sector organizations are male dominated. However, the exclusive use of women for the rural electric cooperative billing department is a special feature designed to introduce some gender sensitivity.
- The social context and customary law pose a challenge to empowerment of women and the move toward gender equality.
- Gender terminology and practical implications are misunderstood by both men and women.
- There is little or no evidence of participatory methods or gender analyses.
- Gender frameworks for planning, implementation, and M&E are not used.
- Little or no evidence of gender training was found in the energy sector, including the Gender and Energy Network.
- Little or no practice of collecting sex-disaggregated information was found.
- Targeting of women (which cannot be equated with gender mainstreaming) is more likely to be considered in decentralized energy services, which have the potential of yielding positive benefits to the community.
- Coordination among energy players, as well as between energy and gender specialists, is weak.
- Implementing agencies have limited capacity to deal with *both* gender and energy as an intersection.
- Greater awareness of gender issues was found within grassroots organizations.
- Partnering with a credible and tenured local institution(s) is key to sustainability.
- MFIs play an important role in increasing access to credit for development purposes and provide capacity building in business and managerial skills, especially for women.
- Some organizations have realized the potential of energy-related development planning through innovative projects.
- Combining energy services with income-generating activities offers the potential for greater economic benefit.
- Focus on customers' ability to pay for energy services marginalizes poorer segments of the population, especially women.

- The rural population, especially women, lacks technical knowledge of modern, decentralized energy services.
- Economic factors, external agents, and informed social networking influence gender relations and roles, with the potential of increasing gender equality.
- Men and women derive different benefits from improved energy services, contributing to increased material and immaterial well-being for both.

5.2 Every sector is affected by energy inputs or their lack, and both men and women play critical roles within society relative to theses sectors as producers, reproducers, and community members. Understanding these roles and the relationships that define them, along with their respective energy needs and priorities, has great potential to maximize the benefits derived from development interventions and expeditiously reach a far larger part of the population. In Bangladesh, BRAC initiated a process of gender training to complement its microfinance and income-generating programs, realizing that merely targeting women does not necessarily yield the expected outcomes, primarily because of the social and customary institutions that were undermining its poverty reduction efforts. For example, women were not able in many cases to control the income they were receiving, which consequently inhibited them from using this capital to further their business or invest in health care or education for the household. In some cases, women suffered adverse consequences (domestic violence) because they had not secured competitive loan amounts. This realization prompted training of staff, which resulted in the development of a mandatory legal course for all female borrowers that aimed to increase knowledge of their rights and provide avenues for gender equality and empowerment. Gender analysis in Mali, specific to the energy sector, recognized the divergent yet complementary roles of men and women in food processing, prompting an intervention (the MFP Initiative [Sokona, *undated*]) that attended to both needs, resulting in increased food security for the community and reduced drudgery for both men and women, freeing their time for other activities (both income generation and leisure).

5.3 ITDG and the Household Energy Development Organizations Network have both piloted projects of vaccine refrigeration, which has helped to decrease morbidity and mortality, especially among the women and children who are often left out from these services. BRAC, TMSS, and Grameen, among others, are working on alternative fuel programs (biogas plants) in Bangladesh to reduce health risks to women and children associated with traditional biomass fuel collection and cooking This has also been shown to increase girls' school enrollment rates, because they are now relieved of such duties. In addition, these organizations have extended the benefits of rural energy services by piloting creative income-generating activities that consider gender roles. Grameen, understanding the limited mobility of women in Bangladesh, launched Grameen Phone, a project that brought commercial activities to the home. By using a wallet-size solar panel to charge cellular phones, women in rural areas are able to communicate outside their communities, in addition to providing "telecenter" services to their neighbours for a small fee. Grameen has also established solar-powered computer centers, offering alternative education opportunities to the rural poor that are accessible by women.

5.4 The review of energy projects in Bangladesh that was conducted by this study, coupled with the review of current literature in the Annotated Bibliography in Annex 1 demonstrate the need to take deliberate steps to integrate gender into energy policies and programs at all levels. For significant impact, gender concepts and implications must be internalized by staff involved in energy-related development projects. Tools and frameworks provide good guidelines, and

understanding and consistently carrying out gender analysis will allow the quantitative and qualitative data to be properly accounted for throughout the program or project cycle with more efficient, equitable, and empowering outcomes. This process takes commitment and time, but it can be aided considerably by the training resources and experts that are increasingly available to provide assistance in mainstreaming gender concerns in energy sector interventions.

6

Recommendations to the World Bank

General Recommendations to Scale Up Gender Mainstreaming

Understanding the direct benefits from having access to improved energy services and addressing them in energy programs.

6.1 *Sex-disaggregated data and analysis.* More sex-disaggregate data and analysis are needed to increase the general understanding of the relationship between gender, energy, and poverty reduction. For example, the HDRC's impact assessment of the RE Program in Bangladesh uncovered notable, however unintentional, benefits from electricity access for rural women. The subsequent involvement of the Netherlands research team indicates that the HDRC's study has set the stage for implementing reform within the REB. Its willingness to partner with the Netherlands research team suggests that the gathering and publication of gender-specific information in the energy sector could have a profound effect on the willingness among key actors in that sector to mainstream gender issues in their projects. Strengthening national bureaus of statistics to integrate sex-disaggregated data on energy uses and production and integrating women's unpaid labor in national accounts could significantly contribute to increasing the availability of gendered data in the energy sector.

6.2 *Gender-sensitive M&E schemes.* Project M&E frameworks should track both quantitative and qualitative gender-specific data to measure benefits, thereby enriching the knowledge needed to build continued support for gender integration into energy.

6.3 *Dissemination of information.* Diffusion of the benefits of mainstreaming gender issues into the energy sector through networks, workshops, and ongoing training (preferably from in-country sources or from external consultants) is important, and conducting training in the local language is critical for both women and men. Workshops should minimally cover the difference between "women" and "gender," the needs and roles of both men and women in energy, an assessment of the energy sector in light of this new understanding, and capacity building with available tools for implementing a gendered approach to energy programs. This information could also be made available through an existing or new website.

6.4 *Targeting.* In addition to the underrepresentation of women in field personnel, none of the participating organizations in the RERED Project have taken the steps to identify the specific needs of women. Both the grid and solar components are constrained by a profit-driven approach that targets households based only on their financial capacity. An SHS in particular is prohibitively expensive for a poor household and particularly for female-headed households, even though NGOs-MFIs, such as BRAC and Grameen Shakti, do offer several financing

options. New innovative financial solutions and specific targeting of the poorer sections of the population—especially women—would mitigate this problem. This should be given particular attention in the design of new rural energy programs.

6.5 *Promoting the application of more efficient energy technologies.* Solving the never-ending cooking energy crisis and the related women's and children's health issues should be a priority. Continuing to promote improved cooking stoves; pricing mechanisms to encourage a shift from biomass to alternative energy sources, such as LPG; and developing biogas are three ways to decrease traditional biomass use and indoor pollution. Another area of intervention is to develop and expand engines able to perform multiple tasks, such as used by the MFP Initiative in Mali, to lighten the community's— especially women's—energy-intensive daily work.

Promoting women's participation in the planning, design, implementation, and M&E processes of energy-related projects and policies

6.6 *Raising awareness of policymakers.* Town meetings, forums, and networks are needed to open channels of communication between government agencies—from local to national—and communities. A key lesson that the Women's Energy Group in South Africa drew from its experience (UNDP 2001) is how important it is to work consistently with local organizations, channel the information stemming from that work to the government, and build alliances with other stakeholders within the energy sector.

6.7 *Incorporating local stakeholders.* Participatory methodologies, involving both men and women, should be used throughout the project cycle to ensure that all stakeholders are properly accounted for in the project. In essence, this must involve locally based facilitators or organizations, or others who are familiar with the local context, to reach individuals and groups that might otherwise be excluded on the basis of socially constructed parameters (for example, class, ethnicity, caste, disability, and so on).

6.8 *Educating women and men on different energy technologies.* Providing the primary end users of energy, in particular women, with adequate information about the advantages and disadvantages (that is, regarding price, environmental effects, health impacts, maintenance) of various energy technologies and providing them with training on how to maintain, and maybe repair, them would allow more educated, and perhaps concerted, choices in terms of energy uses and technologies. Moreover, it would provide energy users with the necessary knowledge to better influence energy projects, programs, and policies.

6.9 *Building upon existing resources.* A gender specialist should accompany energy teams to conduct training, assist with designing energy projects, and develop M&E indicators. This person should have specific training in energy as well as gender issues. Also, gender and energy data-gathering tools and frameworks should be provided to staff members. These can be newly developed or adapted from existing tools from other aid agencies, NGOs, or research centers, such as those available from the U.K. Department for International Development, the University of Twente, Oxfam, and BRAC.

Providing women with opportunities to gain technical and managerial knowledge and play key roles in commercial energy provision, including decentralized energy.

6.10 *Raising the number and profile of women working in commercial energy provision through specific training.* Grameen Shakti presents some promising approaches to increasing

women's participation in the energy sector. They claim that by supporting women's entry into technical fields—efforts they have only recently undertaken—the organizations will create a more equitable working environment, integrate greater female representation into project planning and implementation, and encourage the breakdown of traditional gender roles in rural areas.

6.11 Using the niches created by the new energy technologies and decentralized systems to overcome the barriers that exist in the traditional energy sector. In Char Montaz, women have become entrepreneurs in a nontraditional energy service, DC lamps and charge controllers for SHSs. An independent assessment that includes a participatory evaluation would add tremendous value to spreading the opportunities and benefits for women in this growing field.

6.12 *Targeting communities that have already received capacity-building and other services from local NGOs.* In the case of Char Montaz, the partnership with the SAP was fundamental for the positive outcomes of the project. Another option to partnering would be encouragement of longer-term project cycles or projects in several phases, which could be used to target women who have not participated in any other program, for different levels of capacity building in microfinance, leadership, business, and administrative, managerial, and technical skills.

6.13 *Encouraging women's participation in commercial energy provision.* Providing technical skills to women should be a priority. The Char Montaz Project and the Grameen Shakti program should be used as examples to demonstrate to communities, hesitant energy practitioners, and women themselves that women have the capacity to be involved in technical matters. This would help remove barriers to women's entry into the energy-related work force. Development practitioners and policymakers are beginning to take note of such examples (for example, a forum with the Bangladeshi Minister of Energy and other development agencies, a visit by development practitioners to Char Montaz). However, much work remains to be done to disseminate the lessons from such projects to the local levels. Removing barriers to women's entry to energy-related work would contribute to removing similar barriers in other productive sectors, enabling more women to participate in the formal economic life, which in turn would have positive impacts on poverty reduction.

Specific Recommendations to the RERED Project

Gender-sensitive M&E scheme

6.14 Although the RERED Project mentions the improvement of education for women and girls as one of its objectives, there are no concrete guidelines for measuring this impact. The socioeconomic monitoring activities contemplated in the project have not yet commenced begun. IDCOL needs to incorporate gender-sensitive indicators into its M&E processes, which currently measure only technical and financial information. The REB's M&E unit also needs to design and implement a gender-sensitive monitoring system to determine the gender impact of the project. With the assistance of the consultant to be appointed under the project and the establishment of the socioeconomic impact cell in the REB, it is expected that a gender-sensitive M&E program will be developed. For this information to be gathered appropriately, the participating organizations and other associated staff should understand the purpose and use of gathering such data.

Dissemination

6.15 The RERED Project could also support the nascent Gender and Energy Network established by PSL to reach out to women involved in renewable energy programs and other women energy professionals, pursue initial training, and assist them with the logistics of incorporating gender considerations into energy supply. Strengthening the expertise of this network could have considerable impacts in their respective institutions (for example, those in the government could influence policy, and those in universities could disseminate the knowledge through courses or colloquia). A first step might be a conference to enhance information flow and expand the existing network to include more RERED players. PSL has developed guidelines for the equitable use of RETs by the public sector in Bangladesh, and these should be more widely distributed to expand the knowledge base of other energy practitioners.

Targeting

6.16 To solve the problem of reaching more of the poor and more women, to the extent possible under the current agreement, the RERED Project should consider the possibility of awarding participating organizations with contracts for projects that aim to provide energy services, such as lighting, to public spaces where women and other marginalized segments of the population could be reached (namely medical centers, streets, community centers, and schools, among other contextually appropriate spaces, including cyclone shelters). Further, the RERED Project should introduce an additional criterion—demonstration of gender concerns in the proposed project—to select participating organizations.

Incorporating local female stakeholders

6.17 It is important to include local female stakeholders in planning, implementation, and M&E. IDCOL has already begun a process in which teachers, 50 percent or more of whom are women, will, in their spare time, be paid to monitor SHS installations. Similarly, RERED's implementing agencies and participating agencies should ensure that women beneficiaries have a stake in the project by conducting focus groups, among other participatory methods. It is also recommended that the three female advisers on the PBS boards become voting members. The Char Montaz Women's Cooperative can become a supplier of lamps and charge controllers to the other participating organizations, which would extend their market reach and possibly provide the impetus for expanding the cooperative or creating a new one in other SAP operating areas of the country.

Building upon existing resources

6.18 The implementing agencies should mainstream gender throughout their own organizations or minimally should undergo a series of trainings. BRAC's GQAL Program could serve as an example of institutional gender mainstreaming. Implementing agencies should be provided with gender training manuals. Another option is acquiring the rights to use the University of Twente's *Gender in Energy Training Pack* (Skutsch 1997), which the World Bank country office could then use to conduct workshops.

Building women's capacity

6.19 Women involved in energy provision, such as the Char Montaz cooperative, could be more directly involved with demonstrations and act as spokespersons for reaching other communities. This could include video and other audiovisual presentations conducted by the women.

Improving women's entry into technical positions

6.20 Women's promotion into technical jobs can be accomplished by favoring organizations that strive to achieve this goal or by providing incentives to do so. There is an increasing gap between men and women in the fields of science and technology in Bangladesh, thus there is a critical role for positive discrimination through informal education and vocational programs for women.

Working with women's cooperatives in the extension of RETs to rural areas

6.21 Women's cooperatives can be helpful in extending RETs to rural areas. In addition, favoring partnership with organizations that design programs aiming to couple power provision services with activities where women are already involved, either to ease their tasks or to commercialize such activities, and creating new activities where women can be involved will be helpful in rural areas.

Engendering the institutions involved in the energy sector

6.22 Rural cooperatives, for instance, can provide promising opportunities to incorporate more women, alongside men, in direction, management, and administrative and technical positions. Women are already present in the staff, but they should receive more training for positions with more upward mobility. In addition, the three women advisers should have voting rights in the PBS board of directors.

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Annex 1

Annotated Bibliography

Title: "Bottlenecks of Rural Energy Planning: A Gendered Perspective"
Author: Barbara Bamberger
Source: Yale University, New Haven, Conn., 2003

A1.1 Bamberger shows how energy, even though it is embedded in all other environmental sectors, has somehow become segregated from other gender and environment initiatives; it has only recently gained the attention it deserves. She has explained why energy has been viewed differently (or simply ignored) in relation to gender and suggested that it is this same gender narrative that has propelled the gender agenda forward but has also kept energy behind. Bamberger shows that planners view energy as a technology-driven issue that is gender neutral; they do not recognize it as part of the poverty and economic development agenda. She further suggests that there may be power relations at stake that resist significant change and benefit from fuelwood crisis narratives. These have effectively made energy an invisible issue within the rural community and among women, who are among the poorest of the poor and who will most benefit from greater access to energy. The paper further attempts to explain that the cumulative effect of these issues results in the absence of energy within rural villages, and it is this absence, above all else, that creates an additional bottleneck to development.

Title: "Policies, Projects, and the Market Empowering Women? Some Initial Reactions to Developments in the Energy Sector"
Author: Joy Clancy
Source: University of Twente, the Netherlands, 2000. **Available at** http://www.energia.org/resources/papers/clancy1.html. (Accessed January 31, 2004).

A1.2 Clancy offers several reasons for why the process of engendering the energy sector is slow, including (a) donors still need to develop capacities within their own organizations to incorporate gender into their policies; (b) energy is not widely recognized as an essential basic need (in relation to water and food); (c) energy sector practitioners are "one step removed" from clients (that is, lack of or minimal use of extension agents), which results in lower awareness of the social dimensions of energy; (d) top-down energy policies have an urban, industrial bias; and (e) women's labor is unaccounted for. Suggestions to improve this situation include (a) creation of an analytical framework to analyze international and national energy polices for lack of gender perspective, (b) development of the capacity to accomplish that analytical framework, and (c) collection of more accurate, gender-disaggregated data.

A1.3 Short time horizons of donors and lack of consultation with women are primary reasons for why past energy projects have failed women. However, support for income-generating projects is increasing, because these have the potential to provide women with resources to determine how to address their energy needs (spending choices). According to Clancy, "…what is not clear is if the levels of income envisaged by those proposing income generating projects are the same as those of the women who are expected to undertake them." She discusses the benefits and costs of microfinance and concludes that different levels of finance are needed if women are to be energy entrepreneurs.

A1.4 Clancy addresses the trend toward a greater focus on electricity and its implications for women. She discusses the big picture (emphasis on privatization, foreign direct investment, and private sector energy providers) and concludes that "although market approaches would probably address gender issues, this would be from an efficiency basis."

A1.5 Clancy concludes with questions about participation and lists a number of issues related to participation (for example, actors determining participation, sociopolitical relations and boundaries, male bias, and women's lack of experience in public speaking). She raises the problem of defining success and argues for wider indicators.

Title: "Gender Issues in Energy Policy"
Author: Jyoti Parikh
Source: *Energy Policy*, volume 23, number 9, 1995, p. 745-754

A1.6 The energy sector is an input to a wide array of sectors, from transportation to agriculture. Many governments have formally acknowledged the different needs of society with regard to energy in the various sectors and have attempted to price the input accordingly (for example, incentives for rural versus urban investment or pricing of electricity for agricultural uses as opposed to industry). Unfortunately, gender has not been considered as a dimension that may require special policy intervention or differentiated pricing mechanisms. In general, the needs of women in the energy sector have largely been limited to that of the household, specifically cooking fuels and woodstoves. Further, women's contributions to energy supply, ranging anywhere from 10 percent to 80 percent, have been overlooked. To begin to rectify these issues, Parikh suggests differentiating interest groups at the macro level to differentiate policy: "Need to ask what the per capita energy use by men and women is; what the share of non-commercial energy-use by gender is; the purposes it is used for; how much time is spent and effort made by each gender in accessing energy for their designated activities; and what expenditure is incurred by each gender for energy?" At the macro level, this includes pricing and increased supply; distribution of fuel substitutes should be taken into consideration. Relative pricing should be used to encourage a shift from biomass to kerosene or LPG. In addition, import policies for energy should reflect need. The majority of developing countries spend disproportional amounts on importing fuel for motor vehicles, which cater to only a small percentage of the population, and this ignores the needs of women. Parikh also recommends assessing the costs and benefits of investment decisions in a way that properly reflects the rates of return when switching to

cleaner cooking fuels. This would include health, pollution, education, opportunity cost of time, and so forth.

Title: *The Elusive Agenda—Mainstreaming Women in Development*
Author: Janan, Rounaq
Source: University Press, Dhaka; Atlantic Highlands, London; and Zed Books, London, 1995

A1.7 In a review of national policies and NGOs' country policy and performance, this study considered the policies and measures undertaken over the past two decades in different development contexts to promote gender equality and women's advancement and has attempted to draw a balance sheet of achievements and shortfalls. Rounaq addresses some crucial questions: Is progress elusive because the women's agenda has not been clearly defined, or is it because policies and measures have not adequately addressed that agenda? How should progress be measured, by efforts or by results? Are policies and strategies essentially on the right track, needing only more time and better implementation, or do they need reorientation? The author traces the progression of the issue from an integrationist approach to an agenda-setting approach and concludes that if the women's movement truly wants to transform the development agenda, it has to take a consistent stand in favor of fair sharing of burdens at all levels—within the family, the community, the nation, and the world.

Title: "UNIFEM's Experiences in Mainstreaming for Gender Equality"
Author: Joanne Sandler
Source: UNIFEM, New York, 1997

- Mainstreaming is a process rather than a goal.
- Mainstreaming is not concerned with simply increasing women's participation; rather, it is concerned with the terms of their participation.
- A commitment to mainstreaming does not preclude a focus on women.
- Mainstreaming is, by its very nature, a collaborative effort.

A1.8 Mainstreaming cannot be reduced to a recipe or step-by-step process. UNIFEM recognizes that mainstreaming is situation specific, benefiting from the identification of multiple entry points and strategies, as well as a commitment to seizing opportunities as they arise. It requires attention to how change happens at both the technical and political levels. At the technical level, this study found that mainstreaming requires solid data, sound theoretical underpinnings, and skilled individuals and groups who recognize opportunities and can act as credible advocates for gender equality. At the political level, mainstreaming requires an understanding of how to advocate and press for the implementation of policies and mandates—whether they are international mandates, such as those provided in the Platform for Action, or national mandates, such as national legislation. The political level also requires support to and alliances with a wide range of actors who can find common ground around an agenda for achieving gender equality.

A1.9 Other key aspects for action on gender mainstreaming include building the capacity of women and women's organizations to advocate for their priorities and perspectives on their own behalf, collaborating with other agencies to identify opportunities for incorporating a gender perspective into their work, establishing program linkages with mainstream development priorities, and leveraging financial commitments.

Title: "The Gender Issue in Energy Project Planning: Welfare, Empowerment, or Efficiency"
Author: Margaret Skutsch
Source: *Energy Policy*, volume 26, number 12, 1998

A1.10 There is a tremendous gap between policy and implementation at the project level. This is partly due to differences of opinion on the motive for including gender into planning, whether the welfare, empowerment, or efficiency approach. Concerns of gender and energy include the role of women in developing energy and the impact of energy on women. Energy has the potential to meet both practical and strategic needs of women. Part of the challenge in identifying these intersections can be attributed to the "ghettoization" of women's energy concerns as relegated to cooking. Aside from fuelwood for cooking, body energy is used up in pumping water manually or performing agricultural activities manually (from weeding to transporting grain).

A1.11 There are many indirect linkages to health and education that result from the lack of access to more appropriate energy. In taking the empowerment approach, the position of women is strengthened in relation to men, beyond the necessary legal framework to affect daily life and social relations, so that women can, as Skutsch describes it, "fulfill their strategic objectives through the medium of energy." The welfare approach, simply stated, improves women's well-being in a practical sense, though this does not necessarily have impacts on moving toward equality. The efficiency approach touches on the fact that women have traditionally been excluded from the planning and design of projects that most affect them as producers and suppliers of energy; therefore, including them in the process will produce more efficient outcomes. This approach, too, may not do anything for equity, empowerment, or even welfare. The objectives must be clearly laid out to choose the right strategies to meet these objectives and then choose the correct indicators to monitor the progress toward meeting the objectives. Which approaches a project is attempting to achieve must be explicitly indicated.

Title: "Model for Empowering Rural Poor through Renewable Energy Technologies in Bangladesh"
Authors: Wahidul K. Biswas, Paul Bryce, and Mark Diesendorf
Source: University of Technology, Sydney, 2001

A1.12 This paper explores the possibilities and positive impacts of targeting landless farmers and women in Bangladesh in using RETs to generate income and minimize environmental ills, such as indoor air pollution and deforestation. The authors advocate using an "assisted market mechanism." That is, because of the high capital cost of RETs and the low incomes of the target group, it will be necessary to involve an external agency comprising NGOs, donors, and government (among other institutions) that could provide microfinancing to village organizations (cooperatives and small businesses) for the purchase of solar, biogas, or wind technologies. The authors note, "Several key features of the proposed model have to be tested in the field, notably social equity and gender equity aspects of introducing RETs, and what structure and gender composition of Village Organizations works best in various village societies."

Title: "A Critical Look at Gender and Energy Mainstreaming in Africa"
Author: Njeri Wamukonya. Draft Paper distributed at the "gender perspectives in sustainable development" side event organized by the United Nations Division for the Advancement of Women and the Women's Environment and Development Organizations (UNDESA/DAW-WEDO) at Prep Com III. A panel discussion held on April 3, 2002. **Available at** http://www.un.org/womenwatch/daw/forum-sustdev/ Njeri-paper.pdf. (Accessed January 31, 2004).

A1.13 Wamukonya discusses the progression of gender, development, and energy in international development policy and planning, as well as the current energy challenges facing Africa. The author poses the question, "Will the current women/gender and energy approach help Africa overcome the energy barriers to meeting sustainable development goals?" He contends that the problem is one of a much larger scale and the answer does not necessarily lie in gender mainstreaming. Wamukonya highlights arguments and counterarguments related to women and energy. For example, it is argued that women use energy differently than men, though he posits that this is not a result of being poor, but rather of being a woman. The early approaches of managing supply and demand strategies to close the fuelwood crisis gap highlighted the importance of income as a determinant, though it was not recognized as such during that time. The stoves programs adopted by many donors have failed because of inappropriate technology and men not meeting their responsibilities.

A1.14 Another issue has been women's lack of land tenure, improvement of which would consequently enhance resource management. Wamukonya disputes this argument by stating that land tenure does not necessarily secure fuelwood and unsustainable deforestation would not be occurring if women did not need cash and more income. Arguments that electrification is necessary to empower women are also refuted: "…electricity can empower a society only if the necessary complementary factors are available." Increasing women's participation in decisionmaking at all levels seems to have failed, also. Merely increasing the number of women involved in projects and programs does not always ensure that their needs will be better met—it seems that gender desks in various ministries are marginalized, anyway. Wamukonya claims that for Africa to attain and sustain positive growth rates…the continent needs to significantly increase investments in additional energy infrastructure that can support access to modern energy for both income generation and social development."

Title: "CIDA's Policy on Gender Equality"
Source: Canadian International Development Agency, Hull, Quebec, 1999
Available at http://www.acdi-cida.gc.ca/index-e.htm. (Accessed January 31, 2004).

A1.15 The Canadian International Development Agency (CIDA) has been a major actor in international promotion of gender equality since 1976. Today, the agency's policy is to promote gender equality through gender equity. Gender equity is the means to achieve the overall goal of gender equality. This document has a special focus on human rights of women and girls: it integrates the results-based approach and provides practical tools and best practices on gender mainstreaming. It establishes that "[d]evelopment results cannot be maximized and sustained without explicit attention to the different needs and interests of women and men." CIDA's objectives are to (a) advance women's equal participation

with men as decisionmakers in development, (b) support women's human rights, and (c) reduce gender inequalities in access to resources. The document includes a matrix that shows the existing links between overarching policies and gender equality in different sectors and the results of these policies for women. (Energy is addressed only as a part of infrastructure services.) The importance of gender analysis is highlighted, and guidelines on how to do it are given. According to CIDA, good practices in gender analysis are (a) placing people front and center, (b) employment of skilled professionals, (c) use of local expertise with solid background in gender equity issues, and (d) involvement of a significant number of women. This document also provides strategies and activities that can be used to foster gender equality.

Title: "Swedish International Development Cooperation Agency" (SIDA
Author: SIDA
Source: Action Program for Promoting Equality between Women in Partner Countries, SIDA, Stockholm, Sweden], 1997

A1.16 This paper reviews SIDA's journey in the making of gender policy, rationale, principles, and guidelines. The agency recognizes that the responsibility for promotion of equality lies with national governments. SIDA's support to promotion of equality is guided by the priorities and initiatives identified by national governments. It also recognizes the importance of active dialogue with networks (NGOs and civil society) at various levels in partner countries. SIDA recognizes that the responsibility for monitoring policy lies with the top management and with the heads of departments. Monitoring therefore is a part of individual action plans and is routinely monitored. The paper also discusses gender mainstreaming in country strategy development, policy dialogue, policies, programs, and projects.

Title: "Integrating Gender into the World Bank's Work: A Strategy for Action"
Author: The World Bank
Source: World Bank, Washington, D.C.: 2002

A1.17 In January 2002, the World Bank presented its latest strategy for integrating gender issues into the Bank's work. The strategy was approved by senior management of the Bank and the Board of Executive Directors in 2001. The strategy, in part, draws on the findings of the 2001 World Bank Policy Research Report (PRR), entitled, *Engendering Development Through Gender Equality in Rights, Resources and Voice*. The opening remarks of the strategy paper highlight the rationale for gender mainstreaming:

"Several major World Bank reports provide strong empirical evidence that the gender-based division of labor and the inequalities to which it gives rise tend to slow development, economic growth, and poverty reduction. Gender inequalities often lower the productivity of labor, in both the short term and the long term, and create inefficiencies in labor allocation in households and the general economy. They also contribute to poverty and reduce human well-being."

A1.18 The strategy paper calls for the integration of gender issues into the Bank's work through the preparation of country gender assessments (CGAs) for each country in which the Bank has an active program. These CGAs are to assess the gender-related barriers to poverty reduction and sustainable development while also looking at the gender-related

opportunities that exist within these arenas. Results from these assessments are to be used in identifying appropriate policy responses that are expected to have "high payoffs" in terms of promoting gender-responsive development. The strategy also calls for the alignment of the Bank's operational policy and institutional accountabilities with this strategy.

Title: "Monitoring and Evaluation in Rural Electrification Projects: A Demand Oriented Approach"
Author: Douglas F. Barnes (World Bank) and Johanna Gregory (Winrock International)
Source: ESMAP-ASTAE (Asia Alternative Energy Program), World Bank. Washington, D.C. July , 2003. **Available at** http://wbln0018.worldbank.org/esmap/site.nsf/files/037-03+Final.pdf/$FILE/037-03+Final.pdf

A1.19 The first two chapters of this paper summarize general participatory approaches and advocate for the use of demand-oriented approaches—whether participatory or by survey—through the whole project cycle in rural electrification intervention, including specific gender concerns. It also indicates how each stakeholder (communities, energy suppliers, project staff, policymakers, and donors) can use the methodology. In the third chapter, the paper describes key variables and indicators using gender and rural-urban disaggregated data (for example, sustainability; access and use; change in such development indicators as health, education, and strategic needs; costs and benefits; participation in service; and institutional and policy supports). The authors then go through the techniques in each step of the implementation: appraising and budgeting of the approaches (timing and process of socioeconomic or participatory assessment), selecting and training a multidisciplinary team, random selection techniques in the community, and data collection. They also summarize existing participatory assessment tools, as well as techniques of socioeconomic impact survey, including a list of research topics and contents for a questionnaire on the energy sector. In its conclusion and recommendations, the paper emphasizes the importance and benefits of using the already well-developed qualitative and quantitative techniques in rural electrification programs, with a special emphasis on evaluation of socioeconomic development. In the annexes, the authors provide more in-depth information on the techniques of participatory assessment and socioeconomic impact survey methodologies, including useful tables. In the last annex, the paper presents the application of the approach to Cambodia.

Title: « Eau, genre et développement durable : expérience de la coopération française en Afrique subsaharienne »
Author: Groupe de Recherche et d'Echanges Technologiques (GRET)
Source: Agence Française de Développement. Paris, France. 2002

A1.20 This document presents the history of the integration of gender concerns into development processes. It provides analyses of the traditional power relations between social groups—according to age, ethnicity status, religion, and gender criteria—and how they have changed over the past decades as a result of evolving economic, social, and cultural factors. In the third part, the document focuses on issues related to the management of water and sanitation within the household. It continues with analysis of the particular role of women in relation to these issues and how the beneficiaries have been taken into account in every stage of hydroprojects. Finally, the document defines

what a demand-driven approach should be and what methods can be used to ensure that the gender dimension is better integrated into hydroprojects.

Title: "Integrating Household Energy Programs into Rural Development Programmes"
Author: Agnes Klingshirn
Source: German Agency for Technical Cooperation (*Deutsche Gesellschaft für Technische Zusammenarbeit*) (GTZ), 2002
Available at http://www.energia.org/resources/papers/klingshirn.html. (Accessed January 31, 2004).

A1.21 Klingshirn argues that rural energy projects are not only vital to rural development, but that by specifically addressing household energy conservation, women automatically become the focus of attention and gender questions play a practical, not just a theoretical, role. The economic impacts of such programs include time savings that can be invested in other productive areas, increasing job opportunities for women and men outside agriculture (for example, stove building, chicken or rabbit raising) and financial savings resulting from more efficient use of fuelwood (up to 50 percent). Environmental impacts include reducing the rate of deforestation, controlling erosion, improved soil quality, halting land degradation, and securing long-term productivity. Biomass energy conservation (efficient use combined with tree planting) also helps raise the awareness of the need to protect the environment at the individual household level. Successful household energy interventions can also have substantial health impacts, including the reduction of indoor air pollution; reduced respiratory infections, burns, and birth defects; and greater energy for mothers who no longer have to carry heavy loads of fuelwood over long distances. This improved health also improves productivity and thus increases the chances of breaking the cycle of poverty. Household energy conservation can also help women acquire organizational, technical, and management skills. By freeing up time from fuel and water collection, women can strengthen their organizational capacities. Studies have shown that women who participate in these programs are often willing to implement other development activities, such as improving housing construction and water collection and so forth. Household energy is a cross-sectoral issue and can lead to further cross-sectoral cooperation. Difficulties may arise at the policy level. Questions of legitimacy, power, prestige, and financial responsibility can hinder successful cooperation. External development assistance can help solve these problems by helping to sensitize decisionmakers to the need for cooperation. Costs are another issue; however, rates of return on these household energy projects have been exceptionally high. Klingshirn concludes with a list of practical suggestions required for an initial rapid appraisal that should be done before a community plans its activities.

Title: "Gender Planning in the Third World: Meeting Practical and Strategic Needs"
Author: Caroline O. N. Moser
Source: *World Development*. 17 (11). 1989

A1.22 This article examines how the understanding of the different roles men and women play in the developing world—whether conceptually or even in policy—has not been incorporated in programs and projects. The evolution of gender and development is reviewed in the context of women's triple role, demonstrating the inadequacy of the WID approach in meeting both the practical and strategic needs of women. Various policy

approaches relating to practical and strategic needs are delineated, including the welfare, equity, antipoverty, efficiency, and empowerment approaches. Moser advocates for developing practical tools for policymakers and practitioners that will enable them to more clearly understand the implications of their interventions and help to move toward poverty reduction, equity, and empowerment. Moser also briefly mentions the importance of individuals' efforts and women's organizations that have affected and continue to affect change.

Title: "Mainstreaming Gender and Energy in South Asia" August 2002
Author: Jyoti K. Parikh
Source: ENERGIA website. **Available at** http://www.energia.org/resources/papers/wssd_sasia_regpaper.pdf 2002. (Accessed January 31, 2004).

A1.23 Parikh describes the importance of greater political will and cooperation among government ministries, development agencies, and community organizations. The transition to sustainable development needs to be an important goal of national government, yet no target date for implementation of renewable systems has been adopted for rural areas in developing countries. She stresses the importance of involving women to a greater extent in assessing and adapting fuel and technology choices. Some of the newer energy projects emphasize community mobilization, good governance, transparency and accountability, capacity building, and gender sensitivity. Past approaches to energy policies, such as providing subsidies, do not reach the poor. New strategies must be developed for poor households. Government cooperation in mainstreaming gender concerns into energy is crucial. Policies should specifically target rural household energy needs, and politicians should recognize the importance of gender-sensitive participation when formulating energy programs. Existing ministries (energy, agriculture, environment) can take on these tasks or new ministries can be implemented (health and human resources, rural housing, finance ministries for microfinancing schemes.) At the village level, there must be participation by all members, as well as transparency and accountability. Women should be involved at all levels of management and implementation of community-based energy programs. Proven approaches are self-help groups and income-generating activities for women. Gender-disaggregated data are also key to increasing the effectiveness of energy interventions at the policy, institutional, and implementation levels. More case studies and impact studies are needed, although Parikh provides three case studies from India and Nepal.

Title: "Gender and Sustainable Energy Regional Workshop Series—Mesoamerican Network on Gender in Sustainable Energy"
Author: Winrock International
Source: ESMAP and USAID, Washington D.C. 2002
Available at http://www.winrock.org/general/Publications/GENES.pdf. (Accessed January 31, 2004.)

A1.24 In taking stock of some projects in various countries in Central and South America and developing new pilot project proposals, this workshop series highlighted the main observations and recommendations from case studies:

- Need to incorporate gender focus throughout a project cycle.
- Importance of participatory assessment involving men and women to identify practical needs to resolve them, which tend to address strategic needs as well.
- Recognition that energy is not an end in itself but a means to development, providing the impetus for equitable redistribution of responsibilities, access, and control of resources.
- Importance of women's participation throughout a project, including technical training.
- Need to assess and understand access and resources control issues.
- Key importance of interinstitutional coordination.
- Assessment of potential negative and positive impacts of projects on both men and women.
- Gender-disaggregated indicators from the beginning.
- Key importance of the existing organization of the community.

A1.25 The workshop series recommended further steps, in particular to develop gender-sensitive impact indicators, improve and expand gender-focused project planning and management, and continue capacity building through networks and workshops. On policy, GENES (the Mesoamerican Network on Gender and Sustainable Energy) recommends that practitioners engage ministry officials. In the annexes, the report provides some gender analysis instruments drawn from the World Conservation Union (formerly International Union for the Conservation of Nature and Natural Resources) and used in the case studies, a list of indicators used, a table of action to undertake, and a list of Internet resources on renewable energy.

Title: "Integrating a Gender Dimension into Monitoring and Evaluating"
Source: World Bank, Washington, D.C. 2001

A1.26 Four stages are laid out for integrating gender into M&E:

1. identification and preparation (gender-sensitive baseline data, gender analysis to identify potential negative impacts of project intervention on women and men, identification of gender-related goals and priorities through stakeholder consultation, conduct of gender-sensitive social assessment, assessment of institutional capacity for integrating gender);
2. design and appraisal (ensure that gender is integrated into goals and objectives with clear targets; plan for developing capacity and M&E progress; set up an M&E system through the logical framework (logframes) and indicators for input, output, outcome, and impact; develop best data collection methods and timing; organize reporting and feedback processes);
3. implementation (capacity development for integration, M&E gender-related issues); and
4. implementation completion (assess impact of gender integration, assess impact of project intervention on men and women, derive and share lessons). Participation throughout is important.

A1.27 There is a short description of how to ensure quality participation: Choosing appropriate indicators is crucial—there are some recommendations and examples on questions to be asked to this end.

Title: *UNDP Case Studies: Generating Opportunities for Women in Energy*
Editors: Salome Misana and Gail Karlsson
Source: UNDP, New York. 2001
Available at http://www.undp.org/seed/eap/html/publications/2001/2001a.htm. (Accessed January 31, 2004).

A1.28 This brochure presents a series of pilot energy projects that were implemented mostly in Africa. In the introduction, it summarizes lessons and challenges to scaling up, in particular the needs to involve all levels of government, remove barriers to expansion of energy activities, support local initiatives, and create a national setting to capture lessons learned from the field. The brochure also highlights the need to adopt demand-side approaches and focus on end users and energy services. Finally, it calls for a participatory approach and capacity building and underlines one of the key bottlenecks found in energy projects so far—financial sustainability that requires scaling up a pilot project.

Title: "Gender Concerns in Household Energy in Central America"
Author: Rogerio Miranda
Source: "Gender Concerns in Household Energy in Central America" In *Village Power 2000 Proceedings.* Global Village Energy Partnership**,** ESMAP, World Bank, Washington, D.C.
Available at
http://www.rsvp.nrel.gov/vpconference/vp2000/gender_workshop/gender_workshop.html.
(Accessed January 31, 2004).

A1.29 This paper describes the household energy situation in much of Central America. Miranda outlines how fuelwood represents 90 percent of the overall domestic energy consumption in both Nicaragua and Honduras. The use of inefficient stoves results in the loss of time (rural households) and money (urban households) and imposes huge environmental costs, including deforestation and air pollution. To remedy this problem, Proleña, a local NGO with long experience in the development of efficient stoves, suggested the following in providing alternative modern and accepted woodstoves: professional construction (rather than self-construction), a clean (smokeless) working environment, efficiency, training (to improve women's self-esteem), and microcredit.

Title: "Energy, Health and Gender—Thinking Differently about What We Do"
Author: Mieko Nishimizu
Source: Keynote speech, Regional Workshop on Household Energy, New Delhi, 2002

A1.30 Nishimizu began this speech by saying, "The development challenge we confront today lies not in what we do, but in how we think about what we do." Shifting from fuelwood to LPG or kerosene halved the mortality rate for children under age five in rural India. Use of biomass and coal lead to chronic respiratory infections, lung disease, and cancer. Gathering fuelwood is not only time consuming (taking anywhere from two to nine hours a day) but physically and mentally harmful to women. The supply of alternative energy is a policy issues, and the market should be opened to competitively supply LPG and kerosene. Further, decisionmaking processes (both technical and policy) should include

women. Beneficial outcomes of rural electrification include improved health and literacy for women and children.

Title: "Analyzing Changing Gender Relations: Methodological Challenges for Gender Planning"
Authors: Christine Okali and Catherine Locke
Source: *Development in Practice***,** Volume 9, Number 3/May 1, 1999

A1.31 This article looks at the introduction of new technologies in development interventions and how in the past this has had a negative impact on women's positions, despite available tools that seek to minimize these effects. These tools, however, have served the purpose of ensuring "distributional equity and efficiency in project outcomes," without necessarily accounting for change in relations and negotiations that fundamentally underlie access to and control over resources and labor. Okali and Locke give examples of project failures in Guinea and Nigeria, highlighting the importance of understanding the interdependence of gender roles in a given society and how these relationships must be jointly considered to direct more equitable development outcomes and impacts. The article focuses more on conceptual frameworks and does not offer tools or methodological approaches, noting that tracking social change (such as gender relations) is a challenging task, and adequately incorporating these changes in project planning is even more difficult.

Title: "Scaling up Micro-Hydro, Lessons from Nepal and a Few Notes on Solar Home Systems"
Author: Wolfgang Mostert
Source: ESMAP (Paper presented at Village Power 1998: Scaling Up Electricity Access for Sustainable Rural Development, Washington, D.C., 1998)
Available at http://www.nrel.gov/villagepower/vpconference/vp98/html/proceed.htm. (Accessed February 1, 2004)

A1.32 This document addresses some issues on renewable energies, such as microhydro and SHSs, in Nepal. The country is well suited for this because the majority of its districts have potential for hydropower and there is an industrial base capable of producing most parts of the plants. Despite subsidies and international support from NGOs and bilateral aid, progress has not been satisfactory. This highlights the problems related to "renewables," especially the poor estimations and feasibility studies, and the inability of the beneficiaries to repair this kind of technology. Concerning the SHSs, this document stresses that this technology is mostly targeted to the relatively richer strata of the population. Despite the possibility of a possible cost reduction from economies of scale, grid-based rural electrification is more "equitable," and subsidies would be better allocated if they were to support that type of project.

Title: "Best Practices and Grid Rural Electrification: Preliminary Evidence from Selected Case Studies"
Author: Douglas F. Barnes
Source: ESMAP (Paper presented at Village Power 1998: Scaling Up Electricity Access for Sustainable Rural Development, Washington, D.C., 1998)
Available at http://www.nrel.gov/villagepower/vpconference/vp98/html/proceed.htm. (Accessed, February 1, 2004)

A1.33 This document presents some problems and best practices in rural electrification. Some of the problems to be solved are (a) high costs of infrastructure building and operation in rural areas, (b) lack of liquidity of most people in those areas, (c) local problems (right of way, vandalism, and so on) that are not addressed, and (d) energy sector reform that might underprioritize the rural areas. Case studies provide some possible solutions to these problems. For example, the high costs can be addressed through borrowing and low-cost system design. Because the beneficiaries are poor and therefore cannot afford full upfront costs, including a fixed charge on the regular bill could be possible. Community meetings held well before the infrastructure arrived and the implication of local leaders in bill collection can solve community-level problems.

Title: "The Role of Women in Sustainable Energy Development"
Author: Elizabeth Cecelski
Source: ENERGIA, 2000

A1.34 Renewable energy development can help address the needs of women in (a) fuel scarcity, as well as health and safety; (b) saving time and effort; (c) providing energy for microenterprise development; and (d) fuel substitution, efficiency, and transport. Women have proven capable in indigenous technology innovations and are increasingly adopting nontraditional work roles in the energy sector. So-called male roles are no longer fixed and are often undertaken by female household heads and other women in the household. Women are already playing diverse roles in renewable energy activities, including those of energy consumers, microentrepreneurs, extension workers (for example, maintenance of biogas), leaders, networkers, and lobbyists. There have been particular problems with ensuring benefits to women during the scaling up of energy projects where women-led projects, which are usually part-time and small scale, tend to lose out to male owners with greater access to capital investment.

A1.35 Successful projects to assist women entrepreneurs should pay careful attention to technical feasibility, access to raw materials, access to credit, social and cultural context, management and organization, leadership, and marketing. Provision of credit has been one of the most effective strategies to enable women to own and profit from larger-scale, more efficient processing technologies. Gender issues have historically been ignored in the energy sector, which is defined as capital intensive, large scale, and commercial, requiring high-technology and professional expertise. New trends in energy policy now have a greater focus on women's contribution to energy, the environment, and development relationships. Gender analysis highlights women as active participants in the energy sector. Gender disaggregated data are essential.

Title: "Gender Perspectives on Energy for CSD-9"
Author: Elizabeth Cecelski
Source: Draft position paper including recommendations proposed by the ENERGIA Support Group and the CSD NGO Women's Caucus. 2001. **Available at** http://www.energia.org/resources/papers/csdposition.html *(Accessed, January 30, 2004).*

A1.36 This article sums up the reasons why gender issues need to be more strongly integrated into energy policies, planning, and projects to enhance women's access to sustainable energy. It also highlights accomplishments in integrating gender concerns into the energy sector (by listing milestones in this process) and provides recommendations for future projects.

Milestones in addressing gender issues in energy

- Project ENSIGN at the Asia Pacific Development Centre and UNDP, New York. Microloans for energy services and income-generating activities. Average income growth of 66 percent in participating households.
- UNDP Rural Energy Development Program (Nepal): Promoting gender development and rural energy technologies.
- Women's associations in Mali are promoting small engines for mills, oil presses, and so forth.
- Vietnam Women's Union is promoting SHSs, reaching 70–80 percent of households.
- Improved cookstove projects in Africa.
- Brazil: solar pumping projects with women's participation.
- Solomon Islands: women promoting hydropower.
- Char Montaz: fluorescent lamps.

Recommendations

- Integrate energy access and financing for income generation by both offering services to improve women's access to improved energy and enhancing women's entrepreneurial skills, self-respect, and confidence.
- Address poor women's specific needs for labor-saving, time-saving, improved health, security, and income generation.
- Adapt and apply specific, proven best practice approaches, including microlending.
- Use gender-disaggregated data.
- Prioritize cooking and women's health.
- Encourage institutional representation of women in decisionmaking in local, national, and international organizations.
- Support capacity building and partnerships of women and men involved in energy (training courses, workshops, better education for women).
- Pay particular attention to energy insufficiency in war-torn areas.
- Greater knowledge, analysis, and understanding of energy and gender linkages are needed.
- Technical, catalytic, moral, financial, and political support to joint initiatives are needed.

International

- Greater participation by the UNDP, World Bank, and other international organizations and an interagency working group are needed.
- Donor governments and agencies should support the application and adaptation of methodologies for integrating gender concerns into energy. Also, stakeholder groups should be consulted when projects are being designed.
- Uphold gender equity within their own organizations.

Governments

- Support gender mainstreaming, especially policy and legislation to promote equal rights to inheritance and property because this is directly related to energy decisions.
- Give priority to organizations directly owned and managed by the poor and female stakeholders.
- Encourage women entrepreneurs to enter the energy sector (business and industry).
- Develop technology that meets women's needs for safe, convenient, and efficient cooking energy.
- Include women as participants in technology development.
- Provide scholarships and role models to encourage women to go into professional fields.

NGOs

- Advocate and develop innovative models as examples of effective approaches to increasing women's access to energy.
- Women and children should participate as stakeholders in energy policy and energy service companies.
- Technical education is needed for women and children.
- Involve children and youth in local and national planning processes.
- Encourage schools to use renewable energy technologies.

Title: *Gender Manual: A Practical Guide for Development Policy Makers and Practitioners*
Author: Helen Derbyshire
Source: Social Development Division, Department for International Development (DFID), London, 2002
Available at http://62.189.42.51/DFIDstage/Pubs/files/gender_manual.html. (Accessed January 31. 2004)

A1.37 This manual is designed to help staff from any government or civil society organization who are not gender specialists in recognizing and addressing gender issues in their work. It focuses on the processes of mainstreaming gender issues across all sectors. The manual is divided into three main sections.

Section 1 covers background, ideas, and concepts: gender equality as a development goal; gender mainstreaming as a strategy; an outline history of women, gender, and development, and emerging lessons on mainstreaming gender in national policy frameworks.

Section 2 provides further information about gender mainstreaming and summarizes its four key steps: (1) sex-disaggregated data and gender analytical information, (2) women as well as men influencing the development agenda, (3) action to promote gender equality, and (4) organizational capacity building and change. This section is also concerned with staff responsibility and when to call in specialists' help.

Section 3 contains the practical tools and guidelines for the four key steps of gender mainstreaming.

Title: "Gender Lost and Gender Found: BRAC's Gender Quality Action-Learning Programme"
Authors: Aruna Rao and David Kelleher
Source: *Development in Practice*, Volume 8, Number 2/May 1 1998

A1.38 This document begins with four anecdotes about the Gender Quality Action-Learning (GQAL) Programme in action and provides a brief history of BRAC's attempts to address gender concerns since 1991. Rao and Kelleher present a list of their assumptions about gender and organizational change, as well as an outline of the steps used in designing a program for BRAC. Participatory problem definition and problem -solving methodology were used in creating GQAL. (Specifics can be found in BRAC [1995]).

A1.39 Through the GQAL cycle, large numbers of BRAC staff are actively engaged in the process of defining gender equity and organizational change issues in three areas in which they are challenged to effect change: individual attitudes and behaviors, program results, and organizational systems. The GQAL sequence is as follows: initial education (what is gender?) and issue generation → issue selection (using GQAL criteria) → issue analysis, action planning to address one or more causes of the issue selected → implementation of proposed solutions and changes → evaluation of outcomes. Because GQAL is an ongoing structural intervention, monitoring is incorporated at every step.

A1.40 Rao and Kelleher also highlight some of GQAL's outcomes, successful features, and problem factors:

- Outcomes: improved working relationships, more open communication, greater work efficiency through mutual support, and increased transparency;
- Successful features: field-based, regular, monitored intervention conducted by well-trained facilitators; and
- Problem factors: perceived lack of support from top management, frequent staff transfers, floods (1995), and noncooperative movement (1996) slowed down GQAL process.

Title: *Gender in Energy Training Pack*
Author: Margaret Skutsch
Source: Technology and Development Group, University of Twente, the Netherlands, 1997

A1.41 This is an excellent guide for training groups and individuals involved in the energy sector, whether governmental or nongovernmental. It is organized into seven modules that cover understanding gender, women and gender in energy plans, working toward more gender-sensitive planning, gender analysis tools, gender-sensitive data gathering tools, building gender Tools into an overall planning framework, and introducing the

gender approach into institutions. (An updated version of the training pack is due out sometime in 2004.).

Title: Village Power 2000—Gender Workshop Proceedings
Author: National Renewable Energy Laboratory, World Bank, Winrock International, USAID, ESMAP
Source: ESMAP, 2000
Available at
http://www.rsvp.nrel.gov/vpconference/vp2000/gender_workshop/gender_workshop.html.
(Accessed January 31, 2004).

A1.42 This proceedings document (PowerPoint) is a presentation of ESMAP's, ENERGIA's and Winrock International's work and partnership; it includes references to existing tools for addressing gender issues in development projects and programs. Based on the experience of the World Bank Gender and Transport Thematic Group, steps and actions to be taken are described. The needs for income-generating and gender activities focus, as well as productive needs versus basic needs, are included in the discussion of Microfinance for Energy Services and Income-Generating Opportunities: Project Ensign. Using Participatory Rural Appraisal and surveys of rural households, agriculture enterprises, fishery ventures, commercial enterprises, and institutions in Kenya, Winrock found that more than 50 percent of household energy needs are women's roles and identified energy demand and opportunities. Winrock's experience in Mali is also described in tables.

Annex 2

Useful Resources

Siyanda. An online database on gender and development materials http://www.siyanda.org. (Accessed February 2, 2004).

UNDP. A collection of readings on gender and energy. Available at http://www.undp.org/seed/eap/html/publications/2001/files_2001a/12_Further_Reading.pdf. (Accessed February 2, 2004).

Southern African Poverty Network—Poverty, Gender and Energy. "Report on the Regional Workshop on Women and Sustainable Energy—South Africa, Organized by UNDP's Energy and Atmosphere Office, June 21–22." Available at http://www.sarpn.org.za/genderenergy/index.php. (Accessed February 2, 2004).

———. 2002. Poverty, Energy and Gender in Namibia, Windhoek, May 29–31. Available at http://www.sarpn.org.za/genderenergy/seminar/background.php. (Accessed February 2, 2004).

Winrock International and ESMAP. 2002. Gender and Sustainable Energy Regional Workshop Series—Mesoamerican Network on Gender in Sustainable Energy (GENES), April – July, 2002. Available at http://www.winrock.org/general/Publications/GENES.pdf. (Accessed February 2, 2004).

Gender

BRAC Gender Quality Action Learning Program. 1995. *Technical Manual: An Action-Learning Approach to Gender and Organizational Change*. Dhaka. To order, contact the BRAC Gender Resource Centre at grcbrac@bdmail.net.

Center for Legislative Development—Resources on Gender and Governance. *Gender Perspective* (list of resources and website links on gender frameworks, mainstreaming strategies, and manuals). http://www.cld.org/wipdbgenpers.htm. (Accessed February 2, 2004).

Gender and energy

ESMAP. 2002. "Monitoring and Evaluation of Rural Electrification Projects: A Demand-Oriented Approach." (July 2003) Washington, D.C.

ENERGIA—International Network on Women and Sustainable Energy. http://www.energia.org. (Accessed January 31, 2004).

GST (Gender, Science and Technology Gateway and Gender Advisory Board). Energy: http://gstgateway.wigsat.org/TA/NOS/energy.html. (Accessed February 2, 2004).

Household Energy Development Organizations Network. http://ecoharmony.net/hedon. (Accessed February 2, 2004).

NRECA – National Rural Electric Cooperative Association http://www.nreca.org/. (Accessed February 2, 2004).

Regional Network of Women and Sustainable Energy in Africa. http://www.elci.org/energy/. (Accessed February 2, 2004).

REIN (Renewable Energy Information Network (Bangladesh). (This group includes all sectors and key organizations working on renewable energy in Bangladesh.) http://lged.org/sre/ret-org.htm. (Accessed February 2, 2004).

Southern Africa Poverty Network—Poverty, Energy and Gender. http://www.sarpn.org.za/genderenergy/index.php. (Accessed February 2, 2004).

NGOs

BRAC. http://www.brac.net. (Accessed February 2, 2004).

ELCI (Environment Liaison Centre International. http://www.elci.org/. (Accessed February 2, 2004).

Grameen Shakti. http://shakti.hypermart.net (Accessed February 2, 2004).

ITDG (International Technology Development Group). http://www.itdg.org. (Accessed January 31, 2004).

Winrock International. http://www.winrock.org/. (Accessed February 2, 2004).

International and bilateral organizations

ASTAE (Asia Alternative Energy Program. http://www.worldbank.org/astae/. (Accessed January 31, 2004).

CIDA. http://www.acdi-cida.gc.ca/index-e.htm. (Accessed February 2, 2004).

ESMAP. http://www.worldbank.org/html/fpd/esmap/. (Accessed February 2, 2004).

GEF (Global Environment Facility). http://www.gefweb.org/. (Accessed .February 2, 2004).

GTZ (German Agency for Technical Cooperation [*Deutsche Gesellschaft für Technische Zusammenarbeit*]). Household Energy Program: http://gtz.de/hep/english/index.html (Accessed February 2, 2004). Catalogue of publications: http://www.gtz.de/publikationen/english/publications/index.asp (Accessed February 2, 2004).

NREL (National Renewable Energy Laboratory). http://www.nrel.gov/. (Accessed February 2, 2004).

UNDESA/DAW (United Nations Department of Economic and Social Affairs, Division for the Advancement of Women). http://www.un.org/womenwatch/daw/. (Accessed February 2, 2004).

UNDP. Energy for sustainable development: http://www.undp.org/seed/eap/. (Accessed February 2, 2004).

UNIFEM. http://www.unifem.org/ (Accessed February 2, 2004).

USAID. http://www.usaid.gov/. (Accessed February 2, 2004).

U.S. Department of Energy. http://www.energy.gov/. (Accessed February 2, 2004).

WEDO (Women's Environment Development Organization). http://www.wedo.org/. (Accessed February 2, 2004).

Energy and poverty reduction

ESMAP. 2000. *Energy Services for the World's Poor. Energy Development Report 2000.* Washington, D.C. World Bank. Available at http://www.worldbank.org/html/fpd/esmap/energy_report2000/. (Accessed February 2, 2004).

UNDP. 2002. *Energy for Sustainable Development: A Policy Agenda.* New York. Available at http://www.undp.org/seed/eap/index.html. (Accessed February 2, 2004).

Gender, energy, and development

ENERGIA offers free, online publications in the gender and sustainable energy field, organized by themes (energy and poverty; rural electrification; household energy; climate change; gender, energy, and environment; policy advice; practice and policy; gender and energy training materials; meeting and project reports). Available at http://www.energia.org/resources/publications.html. (Accessed January 31, 2004).

UNDP. 2000. "How Is Gender Relevant to Sustainable Energy Policies?" In UNDP Publications, *Sustainable Energy Strategies: Materials for Decision Makers.* New York Available at http://www.undp.org/seed/eap/html/publications/2000/2000a.htm. (Accessed February 2, 2004).

———. 2001. *Case Studies: Generating Opportunities for Women in Energy*. New York. Available at http://www.undp.org/seed/eap/html/publications/2001/2001a.htm. (Accessed February 2, 2004.).

Government of Norway's Trust Fund for Gender Mainstreaming at the World Bank. http://www.worldbank.org/gender/partnerships/genfund.htm. (Accessed February 2, 2004).

UNDP Thematic Trust Funds: Gender, Energy. http://www.undp.org/trustfunds/. (Accessed February 2, 2004).

Annex 3

Select List of Leading Experts in Energy and Gender

Name	*Organization and position*	*Email*
Baur, Jorg	GTZ (Household Energy Program), coordinator	joerg.baur@gtz.de
Cecelski, Elizabeth	ENERGIA (Research and Advocacy), director	energia@etcnl.nl
Clancy, Joy	University of Twente (Technology Development Group), the Netherlands, senior lecturer	energia@etcnl.nl
Klingshirn, Agnes	Household Energy Network, founder	aklingshirn@compuserve.com
Parikh, Jyoti	Indira Gandhi Institute of Development, professor	jparikh@igidr.ac.in
Ramana, Venkata	Winrock International (Clean Energy Group), managing director	vramana@winrock.org
Wamukonya, Njeri	United Nations Environment Programme Collaborating Centre on Energy and Environment, energy planner	Njeri.wamukonya@risoe.dk
Winkler, Katja	Fundación Solar, coordinator of GENES	funsolar@interlnet.net.gt