



Gender and Energy Capacity Building Workshop for South Asia
Pan Pacific Sonargaon Hotel | Dhaka, Bangladesh | June 15-17, 2010

Sponsored by the World Bank and ESMAP in partnership with the
Rural Electrification Board of Bangladesh

WORKSHOP PROCEEDINGS | ANNEXES



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Workshop Proceedings, Presentations and an Overview Workshop Video can be found online at:
www.esmap.org/esmap/energyandgender

Annex 1: WORKSHOP AGENDA



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TIME	MONDAY JUNE 14, 2010
15:00	Arrival and Check in
19:00	Dinner at own convenient time at Hotel Cafeteria
	DAY 1: Tuesday June 15, 2010
08:00- 08:45	Registration
09:00- 10:00	Welcome and Introduction to the Workshop <ul style="list-style-type: none">• Nilufar Ahmad, Senior Gender Specialist, SDV: <i>Gender Integration in the Energy Sector: Challenges and Opportunities.</i>• Vanessa Lopes, Operations Analyst: <i>ESMAP: A Program Committed to Gender</i>• Dominique Lallement, International Development Consultant & workshop Facilitator: <i>Workshop Objectives, Expectations, Structure, and Ground Norms</i> Q and A
10:00- 11:00	Inaugural Ceremony <p>Chair: Ms. Ellen Goldstein, Country Director, World Bank Office Dhaka</p> <ul style="list-style-type: none">• <i>Welcome Address by the Chair: Ms. Ellen Goldstein</i>, Country Director, World Bank Office Dhaka• <i>The World Bank's Engagement in South Asia Energy Sector: Mr. Kwawu Gaba</i>, Lead Energy Specialist, South Asia Region, the World Bank• <i>Speech by Chief Guest: H.E. Dr. Tawfiq-e-Elahi Chowdhury, BB,</i>

	<p>Adviser to the Honorable Prime Minister, Government of Bangladesh</p> <ul style="list-style-type: none"> • <i>Closing remarks: Mr. Bhuiyan Shafiqul Islam</i>, Chairman, Rural Electrification Board (REB), Bangladesh
11:00-11:20	MORNING TEA BREAK
11:20-12:00	<p>Module I: WHY Gender and Energy: Learning from good practices</p> <p>Chair: Mr. Bishwa Prakash Pandit, Joint Secretary, Ministry of Energy, Nepal</p> <ul style="list-style-type: none"> • Ms. Fayeza Haque, Director, Management and Operation, Central and Mr. Latiful Azam, Deputy Director Socio Economic Monitoring and Evaluation Cell, REB: <i>Bangladesh Rural Electrification Project</i> <p>Q and A</p> <ul style="list-style-type: none"> • Video Presentation: <i>Bhutan Women Solar Engineers</i> <p>Q and A</p>
12:00-13:00	<p>Working Groups I: On the basis of the case studies presented in the morning plenaries, participants will be asked to share their knowledge and experience, and to identify relevant gender entry points for activities within the purview of their responsibilities.</p>
13:00-14:00	LUNCH – Italian Restaurant
14:00-14:30	<p>Module I (Continued)</p> <ul style="list-style-type: none"> • Plenary Working Group Reports • Chair's concluding remarks
14:30-15:30	<p>Module II: Operational Tools</p> <p>Chair: Ms. R. Prabha, Senior Project Manager (TIDE), India</p> <ul style="list-style-type: none"> • <i>Presentations of (a) Screening and (b) Design Tools for Sector Strategies and Projects</i> <p>Q and A</p> <ul style="list-style-type: none"> • K. Gaba: <i>Gender Action Plans for Projects, Example of Mali Rural Energy</i> <p>Q and A</p>

15:30-16:30	Working Groups II: Participants will work in 4 or 5 groups, and will be given case studies to apply the Operational Tools to which they will have been introduced.
16:30-16:45	AFTERNOON TEA BREAK
16:45-17:30	Module II (continued) <ul style="list-style-type: none"> • Plenary Working Group Reports • Chair's concluding remarks
17:30-18:00	Facilitators <ul style="list-style-type: none"> • Field Trip Assignments • Closing the day and Lessons Learnt
19:30	Formal Dinner: Italian Restaurant Guest Speaker: Mr. Abser Kamal , Managing Director, Grameen Shakti, Bangladesh

DAY 2: Wednesday June 16, 2010	
8:30-10:00	<p>Module III. Monitoring Performance and Measuring Results</p> <p>Chair: Ms. K.V. Indrani Mallika, Director (Planning), Ministry of Power and Energy, Sri Lanka</p> <ul style="list-style-type: none"> • <i>Presentation of Monitoring & Impact Evaluation Framework</i> • Mr. Mangal Das Maharjan , AEPC, Nepal: Small Hydropower Project Monitoring Framework • Mr. Jie Tang: Laos: Rural Electrification <p>Q and A</p>
10:00-11:00	<p>Working Groups III: Participants will be asked a) to introduce to the group a project on which they are working, and b) to use the Monitoring and Impact Evaluation Framework introduced in the plenary to develop an M & E framework for their project and identify monitoring and impact indicators.</p>
11:00-11:15	MORNING TEA BREAK
FIELD TRIPS	
11:30	Leave Hotel for Field Trips (with Lunch Boxes)
19:00	Return from Field Trips
19:30	Dinner

DAY 3: Thursday June 17, 2010	
08:30-09:30	<p>Module III (Continued)</p> <p>Co-chairs: Ms. Indrani Mallika and Ms. Fayeza Haque</p> <ul style="list-style-type: none"> • Reports from Working Groups III • Reports from field trips.
09:30-11:00	<p>Module IV. Planning for Action in World Bank Activities and in ESMAP Projects</p> <p>Chair: Mr. Mirwais Alami, Chief Commercial Officer, DABS, Afghanistan</p> <ul style="list-style-type: none"> • Government Representatives to present their energy program of their respective countries, including existing or potential financing from the World Bank. • Vanessa Lopes: ESMAP: Planning for Action <p>Q and A</p>
10:45-11:00	MORNING TEA BREAK
11:00-12:30	<p>Working Groups IV: Country teams' Action Planning. Participants will be grouped by country teams and will be asked to identify a) the projects and policy analytical tasks in their World Bank/ESMAP workprograms which would be good candidates for integrating gender, and b) to propose specific gender elements in each component of the workprogram.</p>
12:30-13:30	LUNCH (Italian Restaurant)
13:30-14:45	<p>Chair: Kazi Afaq Hussain, Additional Secretary, Establishment Division, Ministry of Economic Affairs and Statistics, Pakistan</p> <ul style="list-style-type: none"> • Presentation of Country Action Plans
14:45-14:55	Short break to Allow for the Arrival of Honored Guests
15:00	<p>Closing Ceremony</p> <p>Chair: Mr. Bhuiyan Shafiqul Islam, Chairman, Bangladesh Rural</p>

	<p style="text-align: center;">Electrification Board (REB), Bangladesh</p> <ul style="list-style-type: none"> • <i>Welcome address by the Chair:</i> Mr. Bhuiyan Shafiqul Islam, Chairman, Rural Electrification Board (REB) • <i>Participants' Feedback on the Workshop</i> • <i>Key Lessons for the World Bank:</i> Ms. Tahseen Sayed, Acting Country Director, World Bank Office Dhaka • <i>Speech by Chief Guest:</i> Dr. Shirin Sharmin Chowdhury, MP, Minister of Women and Children Affairs, Bangladesh • <i>Closing Remarks and Vote of Thanks:</i> Mr. Islam Sharif, Executive Director and CEO, Infrastructure Development Company Ltd. (IDCOL)
16:00	Closing of the Workshop

Annex 2: Workshop Participants



GENDER AND ENERGY CAPACITY BUILDING WORKSHOP FOR SOUTH ASIA

June 15-17, 2010 | Dhaka, Bangladesh

NAME	TITLE	ORGANIZATION	COUNTRY
Mr. Mirwais Alami	Chief Commercial Officer	Da Afghanistan Breshna Sherkat (DABS)	Afghanistan
Mr. Shakeeb Ahmad Nessar	Planning Engineer	Da Afghanistan Breshna Sherkat (DABS)	Afghanistan
Mr. M. Iqbal	Sr. Energy Specialist	World Bank	Bangladesh
Ms. Shirin Jahangeer	Consultant	World Bank	Bangladesh
Mr. Md. Abul Fayez Khan	Program Assistant	World Bank	Bangladesh
Ms. Ellen Goldstein	Country Director	World Bank	Bangladesh
Mr. Zubair K. M. Sadeque	Financial Analyst	World Bank	Bangladesh
Dr. Tawfiq-e-Elahi Chowdhury, BB	Adviser to the Honorable Prime Minister	Government of Bangladesh	Bangladesh
Dr. Shirin Sharmin Chowdhury, MP	Minister	Ministry of Women and Children Affairs	Bangladesh
Mr. Bhuiyan Shafiqul Islam	REB Chairman	Rural Electrification Board (REB)	Bangladesh
Mr. Abser Kamal	Managing Director	Grameen Shakti	Bangladesh
Mr. Md. Ahsan Ullah Bhuiyan	Assistant General Manager	Grameen Shakti	Bangladesh
Ms. Ferdousi Sultana	Social Development and Gender Officer	Asian Development Bank (ADB)	Bangladesh
Ms. Reba Paul	National Steering Committee for SAWAF-III & Programme Coordinator	Global Water Partnership-South Asia (GWP-SAS)	Bangladesh
Mr. Md. Salahuddin Ahmed	Assistant Chief	Economic Relations Division (ERD)	Bangladesh
Mr. A.I.M. Latiful Azam	Deputy Director, Socio Economic Monitoring Cell	Rural Electrification Board (REB)	Bangladesh
Mrs. Fayeza Haque	Director (PBS Development and Operation – Central)	Rural Electrification Board (REB)	Bangladesh
Mr. Muhammad Matiur Rahman	Deputy Director (E&D)	Rural Electrification Board (REB)	Bangladesh
Mrs. Khaleda Parveen	Deputy Director, Office of the Executive Director	Rural Electrification Board (REB)	Bangladesh
Mr. Md. Abdur Rahim Mallik	Deputy Director (Program Planning)	Rural Electrification Board (REB)	Bangladesh
Mr. Shah Zulfiqar Haider	General Manager Narayangaj (PBS)	c/o Rural Electrification Board (REB)	Bangladesh

Ms. Umama Angalin	Project Officer	Infrastructure Investment Facilitation Center (IIFC)	Bangladesh
Ms. Farzana Husain	Investment Officer (Technical)	Infrastructure Development Company Ltd. (IDCOL)	Bangladesh
Ms. Sadia Hoque	Loan Officer	Infrastructure Development Company Ltd. (IDCOL)	Bangladesh
Ms. Tasrina Zaman	Investment Officer	Infrastructure Development Company Ltd. (IDCOL)	Bangladesh
Ms. Nira Maumder	Deputy Director (Project Planning)	Bangladesh Power Development Board	Bangladesh
Ms. Hamida Idris	Senior Assistant Chief	Energy and Industry Division, Planning Commission	Bangladesh
Mr. Kwawu Mensan Gaba	Lead Energy Specialist	World Bank	India
Mr. Anjali Garg	Energy Specialist	World Bank	India
Mr. Parthapriya Ghosh	Social Development Specialist	World Bank	India
Ms. Mani Khurana	Energy Economist	World Bank	India
Dr. Sangeeta Kohli		Department of Mechanical Engineering, IIT	India
Ms. R. Prabha	Senior Project Manager	Technology Informatics Design Endeavour	India
Ms. Jyoti Gupta	Senior Accounts Officer/Funds	Haryana Vidyut Prasaran Nigam Limited	India
Ms. Vineeta Singh	XEM Dahskin	Haryana Bijli Vitran Nigam Limited	India
Mr. Mudit Narain	Energy Analyst	World Bank	Nepal
Mr. Kiran Man Singh	National Programme Manager	Rural Energy Development Programme (REDP)	Nepal
Mr. Mangal Das Maharjan	National Project Director, Renewable Energy Project	Alternative Energy Promotion Center (AEPC)	Nepal
Mr. Bishwa Prakash Pandit	Joint Secretary	Ministry of Energy	Nepal
Mr. Kazi Afaq Hossain	Additional Secretary	Establishment Division Government of Pakistan	Pakistan
Mr. M. Taimur Khan	Director General (Development)	Ministry of Women Development	Pakistan
Ms. K.V. Indrani Mallika	Director (Planning)	Ministry of Power and Energy	Sri Lanka
Ms. Dominique Lallement	Gender and Energy Consultant	World Bank	USA
Ms. Nilufar Ahmad	Senior Gender Specialist	World Bank	USA
Ms. Vanessa Lopes	Operations Analyst	World Bank/ESMAP	USA

Annex 3: Case Studies for Group Work

WORKING GROUP TASK – Screening Tool Activity

- 1.) Identify a Moderator and a Rapporteur who will
 - Summarize the discussion on a flip chart
 - Present the conclusions of the group activity
- 2.) Read the Country One Energy Sector Strategy Case individually (Not more than 3 minutes)
- 3) Using the screening tool introduced in the plenary:
 - Identify the gender questions you would want to raise when reviewing the Case
 - Identify the activities in the World Bank program which you view as good candidates for integrating gender; which gender questions would you ask in each activity? Which gender actions would you recommend for the project?
- 4.) Rapporteur presents group conclusions to other participants

CASE STUDY 1: Screening Tool Activity: Country One Energy Sector Development Strategy

Background

Country One places a high priority on developing its energy sector. There are shortages in supply. Over a third of the power is generated from imported fuels, and fuel prices are high. The country has hydropower potential, gas, and coal resources. The majority of power and gas utilities are government owned companies; similarly for the company which handles the bulk of fuel imports. The financial situation of the companies is precarious. Tariff adjustments have not kept pace with increasing costs. Retail prices of electricity and fuels are heavily subsidized, and cost the economy 13% of GDP. Thirty five percent of the population lacks access to electricity and 70% rely on traditional biomass fuels and appliances to meet their cooking needs.

Social sector indicators lag far behind other Asian developing countries. There are glaring gender disparities in women's access to education, health, economic resources and incomes, and political participation in decision-making bodies at the family, community, and national levels. Women constitute an increasing proportion of household heads as men are migrating overseas for better economic opportunities. However, because women don't have access to traditional assets (land), female headed households constitute 60 percent of households in the low income quintile. Donors are supporting the implementation of a government strategy for gender reform.

Government Energy Sector Development Strategy Objectives

- Financial recovery of the energy sector
- Enhance gas supplies to the power sector
- Establish a social protection program to enable vulnerable households to receive a minimum of electricity at affordable prices
- Increase institutional efficiency in policy formulation, planning, investments, and private sector participation
- Strengthen accountability of public sector owned distribution companies
- Increase private sector participation in hydroelectric, coal and distribution
- Increase regional cooperation for energy trade to diversify supply and increase energy security

Planned World Bank Assistance

- Investment
 - Gas to Power Efficiency and Loss Reduction Project
 - Electricity Distribution Efficiency Enhancement and Network Extension
 - Thermal Power Generation Efficiency Enhancement and Consolidation of Transmission Network
 - Development of renewable Energy
- Advisory and analytical assistance in policy measures:
 - Tariff policy and sector financial restructuring
 - Design of a social protection scheme for energy and other utility sectors
 - Enhancing accountability and corporate governance of public sector power companies

- Regulatory framework for private sector participation
- Strengthening policy making and coordination among energy- and non-energy related ministries

CASE STUDY 2: Screening & Project Design Tools: Community-Based Renewable Energy Development in Country One

Background

Country One places a high priority on developing its energy sector. There are shortages in supply. Over a third of the power is generated from imported fuels, and fuel prices are high. The country has hydropower potential, gas, and coal resources. The majority of power and gas utilities are government owned companies; similarly for the company which handles the bulk of fuel imports. The financial situation of the companies is precarious. Tariff adjustments have not kept pace with increasing costs. Retail prices of electricity and fuels are heavily subsidized, and cost the economy 13% of GDP. Thirty five percent of the population lacks access to electricity and 70% rely on traditional biomass fuels and appliances to meet their cooking needs.

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Indigenous and ethnic groups may be present in communities where the project will be implemented. A baseline survey of the project area indicated that rural communities use firewood, kerosene oil, diesel generators and dry-cell batteries to meet their daily energy and livelihood requirements. Indoor pollution adversely affects the health of local population, especially women and children. Increased use of forest resources for domestic use is having a negative impact on the forest cover resulting in loss of vegetation and increased levels of soil erosion and floods in the rainy season.

Project Development Objective:

Establish a sustainable program for expanding access to electricity in rural communities, thus supporting broad-based economic development and helping alleviate poverty.

Project Components

- Mini-grid and off-grid Electrification for 5000 villages and at least 50% of household served in each village over 3 years.
- Stand-alone systems of productive uses of energy

- Capacity Building and Technical Assistance to develop various business models: electrification cooperatives, and independent private utilities.
- A pilot project to establish a network of retailers to disseminate LED lamps, including a subsidy given to retailers and a consumer satisfaction survey.

CASE STUDY 3: Country Two, Clean Power Project

Background

Energy security underpins all aspects of economic growth in Country Two. However, aging and dilapidated industrial and energy infrastructure and technology, weak performance of energy utilities, and lack of new investment characterize the power generation, transmission, and distribution infrastructure. Existing power stations and transmission lines go are established or go through densely populated areas. The low cost of energy causes suboptimal energy mix, inefficient use, and frequent power failures. Large amounts of natural gas are wasted due to substandard power generation efficiency, and transmission and distribution losses. As a result of inefficiency and infrastructure bottlenecks, the country is beginning to face power supply shortages. Investing in energy efficiency from economic, social, environmental perspectives has become a priority for Country Two.

Frequent power failures have caused major damage on the water utilities' infrastructure, resulting in a deteriorating in the reliability of safe drinking water so that families who can afford it have started using their own wells. Female headed households are at a disadvantage as they do not have access land rights, water rights or access to credit. They are underrepresented in the bodies overseeing the management and distribution of these key resources, even though the Constitution affirms a strong commitment to gender equality.

The Government is undertaking a major program to upgrade the power infrastructure to international standards. It has approached the World Bank for financing, and has started discussing the procurement requirements for the contractor. The influx of outside workers was raised as an issue during the community consultation, with three major concerns: (i) the impact that the increased number of workers would have on the existing community facilities; and (ii) the potential for conflict; (iii) the potential increase in the spread of HIV/AIDS. Other concerns included: lack of separate washroom facilities for women and men in the plant, high vibration levels in the plant, noise levels in the surrounding community, disposal of solid waste, and impact on roads already in poor condition. The contractor will be required to develop a community facilities and liaison plan to address these issues and instructed to utilize local labor, where feasible, particularly from lower income groups.

Project Development Objectives:

- To supply 25% of the country with clean, reliable and affordable electricity. provide with a reliable source of heat and electricity
- To minimize the environmental impact of power generation

Components:

- 2 high efficiency combined cycle gas turbines (CCGT).
- Seven pumping stations for irrigation water.
- 500 kilovolt (kV) transmission lines and sub-stations
- Repair and upgrading of workforce accommodations and local roads

CASE STUDY 4: Small Hydro-Power Development Project in Country Three

Background

Nearly 250 million people in Country Three do not have access to electricity and an even larger number (325 million) do not have access to modern cooking fuels. Together, women and children collect close to 28% of all primary energy. About 70 percent of the country's population lives in rural areas. Poor quality biomass such as crop residues, animal dung and fuelwood are widely used in rural areas and have detrimental impacts on women's welfare, status, and health, and also on the environment. Whereas LPG and kerosene are the dominant cooking fuels in urban households, these are not commonly used in rural areas due to the absence of markets and distribution networks and the very limited cash incomes in most rural households.

The power industry in Country Three is characterized by inadequate and inefficient power supply with peak capacity and energy supply shortages exceeding 20 percent and 10 percent, respectively. Low energy prices and market and non-market barriers to energy efficiency have contributed to the inefficient end-use of electricity and thermal energy. This inefficiency exacerbates the energy shortage situation. The bulk of capacity additions in power supply is expected to come from coal-fired stations supplemented by hydroelectric power. Environmental NGOs are pressuring industry to invest more in clean energy resources which are abundant. Large hydro power plants could lead to loss of forests, wildlife habitat and biodiversity, and most importantly, the displacement of people.

Project Development Objectives:

- Increase environmentally sustainable power supplies
- Mobilize private sector investments in renewable energy projects
- Promote energy efficiency and demand-side management (DSM) investments

Project Components.

- **Small Hydropower**, testing new business models featuring partnerships between private investors and local communities.
- **End-use Energy Efficiency** through Energy Service Companies yet to be created, including the production of energy efficient appliances
- **Technical Assistance:** pre-investment activities to develop a sustainable pipeline of energy-efficient investments and standard bidding documents for the new Energy Service Companies

Project five year performance indicators include:

- The increased installed hydropower capacity
- The number of communities and household served
- End user efficiency gains
- The number of new enterprises developed and jobs created by the industry

Annex 4: Approaches to Assess and Mitigate Gender Inequalities in Energy Project Risks and Benefits

Approaches to Assess and Mitigate Gender Inequalities in Energy Project Risks and Benefits

Types of Energy Projects ¹	What is included?	Gender and Energy Issues	Gender Questions for Social Assessment, ESIA	Gender Inclusive Design Elements	Gender Informed M&E
Low Carbon	Renewable energy, energy efficiency improvement, biomass energy, substitution of carbon intensive fuels with cleaner fuels	<ul style="list-style-type: none"> -Indoor air pollution (IAP) from fuelwood and traditional appliances affects predominantly women and children -Collecting fuel wood increases women's time poverty -How can women and men benefit equally from renewable energy projects and energy efficiency projects 	<ul style="list-style-type: none"> --What forms of energy are used for heating, cooking, lighting, business and agriculture by women and men and why? --How much time and money are women and men expending to provide heat and light to household? For income generating activities? --What is the incidence of IAP related illnesses for women, men, children? 	<ul style="list-style-type: none"> --Energy efficient stoves designed in consultation with users, predominantly women --Sustainable forestry management supplying wood and providing employment. --Fuel diversification providing opportunities for new M/F energy enterprises. --Inclusive community participation 	<ul style="list-style-type: none"> -- M/F reduced incidence of respiratory, eye infections from IAP --Reduced M/F time required for gathering fuel wood --Increased M/F income with increased time for employment, productivity --Increased female participation in household and community energy decision-making
Access,	<ul style="list-style-type: none"> Increase access to electricity. -- Depending on the power generation, this may include power generation and transmission as well as distribution. -- Includes a range of technologies and 	<ul style="list-style-type: none"> --Inability of many of the poor to pay for connection, particularly female headed households --Lack of access to lighting limits home-based productive activities, 	<ul style="list-style-type: none"> --What are the major constraints on access to electricity for women and men? --What is the cost of lack of access in terms of productivity, education, health. --What are the risks and 	<ul style="list-style-type: none"> --Credit to enable the poor to pay connection fees --Off grid power (LED battery operated, lights, multifunction platform,) businesses owned by women's cooperatives 	<ul style="list-style-type: none"> --Increase in use of energy-related appliances --Expanded food production for consumption and sale. --Increased M/F school attendance and higher levels of education

Types of Energy Projects¹	What is included?	Gender and Energy Issues	Gender Questions for Social Assessment, ESIA	Gender Inclusive Design Elements	Gender Informed M&E
	institutional solutions	education(studying), and posed safety risks. --Electricity facilitates provision of potable water in homes (pumping) and irrigation of crops, reducing time spent by women on water chores.	opportunities associated with proposed electricity access? Will women have the same access as men to the opportunities and bear the same share of risks?		attained
Blended Low Carbon and Access	Access projects using low carbon energy and off-grid options to increase access to electricity and other energy.	All points above apply	All points above apply	All points above apply	All points above apply
Energy Efficiency	--Demand side: demand response programs, end use energy efficiency, consumer awareness, institutional development, regulatory reform, improved utility management, --Supply side: modal shifts from cars to mass transit, heating enhancement, improved power transmission, improved, metering power system optimization, plant rehabilitation	--Women seldom have lesser access than men to information about energy efficient technology, especially when have low literacy rate --Gender issues associated to mass transit	-Will a change in energy tariff levels and structure for energy affect women differently than men? --Will proposed reforms provide equal employment and business opportunities to women and men?	--Media campaign targeting different user groups including women --Mobilization of women's groups to promote consumer and business awareness of energy efficiency. --School programs and fairs on energy efficiency --social accountability measures (score card) rating performance of utilities	--Increased M/F awareness of energy technology and efficiency options. --Increased efficiency of utility management and service delivery --Percentage of women/men adopting energy saving technologies. --Increased ability of the poor to access modern energy services
New	Solar energy for heat and	--Gender disparities in	What are the risks and	--Skill training and credit	--Number of M/F

Types of Energy Projects¹	What is included?	Gender and Energy Issues	Gender Questions for Social Assessment, ESIA	Gender Inclusive Design Elements	Gender Informed M&E
Renewable Energy	power, wind energy for mechanical and electrical power generation, geothermal and biomass for power generation and heat, hydropower of 10MW or less per installation	representation in Energy technology fields, in both training and employment --information on energy technology more accessible to males. --Due to traditional land tenure practices, women may lack collateral for loans to form enterprises.	opportunities associated with electricity access projects? Will women have the same access as men to the opportunities and bear the same share of risks?	to facilitate women involvement in renewable energy businesses/activities: solar , microhydro or biogas production and distribution enterprises	headed households adopting renewable energy systems --number of M/F new renewable energy enterprises --Increased M/F income from renewable energy enterprise --Reduced time collecting fuelwood
Large Hydro	Hydropower producing 10 MW of power or more per installation	--Displacement, resettlement, livelihood loss may affect women more than men. --Poor people most affected by dam construction often benefit least	What are the risks and opportunities associated with proposed hydropower facility? Will women have the same access as men to the opportunities and bear the same share of risks?	--Ensure that resettlement process includes women in assessment of affected persons, compensation in own bank account, skills training. --Programs to provide share of hydropower profits to poor displaced by dam --training programs targeted to women to increase number of female technical staff in hydropower companies -- Training and obligations of contractors on HIV/AIDS	--number of displaced women and men trained for alternative livelihoods. -- financial compensation for resettlement by gender --Share of hydropower profits distributed to poor households displaced by dam -- Percentage of male/female employees in hydropower companies -- monitoring of training programs --monitoring of HIV/AIDs mitigation

Types of Energy Projects¹	What is included?	Gender and Energy Issues	Gender Questions for Social Assessment, ESIA	Gender Inclusive Design Elements	Gender Informed M&E
					measures by contractors
Thermal Generation	Thermal power producing electricity from fossil fuel energy sources.	--Displacement, resettlement, livelihood loss affect women more than men. -- Employment of women and men in power companies	What are the risks and opportunities associated with proposed electricity access? Will women have the same access as men to the opportunities and bear the same share of risks?	--Ensure that resettlement process includes women in assessment of Affected persons, compensation in own bank account, skills training. -- Same training and employment strategies as for hydropower -- Training and obligations of contractors on HIV/AIDs	Same as for hydropower
Transmission	New network capacity expansion or rehabilitation of existing systems with new T&D equipment.	--Displacement, resettlement, livelihood loss affect women more than men. -- Impact on women and men of electromagnetic fields	What are the risks and opportunities associated with proposed power transmission grid?	Ensure that resettlement process includes women in assessment of affected persons, compensation in own bank account, skills training.	Same as for hydropower and thermal power generation
Distribution	New network capacity expansion or rehabilitation of existing systems with new Distribution equipment. Connections to individual	--Titles to Homestead, affordability, communications with male and female consumers --End-User efficiency	--What is the composition of the Utility Workforce? --Will women have the same access as men to the opportunities and bear the same share of risks?	--Information and communications for both W and M; --ensure that F and M Headed Household have equal access, incl. credit	-- increase in connections by F and M headed HH -- increase in social (education, health) and incomes indicators

Types of Energy Projects¹	What is included?	Gender and Energy Issues	Gender Questions for Social Assessment, ESIA	Gender Inclusive Design Elements	Gender Informed M&E
	users	--Affordability of connections and end use equipments and appliances	--Is there a difference in affordability between female headed and male headed households? -- What are the main uses of electricity by women and men? -- Is electricity used for productive uses?	programs, social safety net (tariffs) -- include components for productive uses.	from having access to electricity -- increase in household-based or other businesses

Annex 5: Gender Screening Tool for Energy Operations

Draft: work in progress for feedback.

Gender Screening Tool for Energy Operations

The screening tool provides task teams the means to consider whether or not energy-related inequalities between women and men could negatively impact energy sector strategy or project outcomes. The tool also assists task teams to assess whether or not the sector strategy or project could potentially increase inequalities between women and men and/or inadvertently place women at greater risk than men regarding negative impacts of the project on people and/or ignore serious energy-related risks faced by women. This assessment enables teams to determine whether and the extent to which the gender issues identified need to be addressed in specific energy operations. Key screening questions can be answered through desk top review and interviews with Gender or Women and Development, Labor and Energy officials as well as NGOs and other donor organizations addressing gender and issues in the partner country. Examples of sources of this information are included for each question. If the answer to any of the screening questions is yes, gender needs to be addressed to some degree in the project overall or in one or more project components. Examples are provided of effective approaches to address the gender issues raised by each screening question.

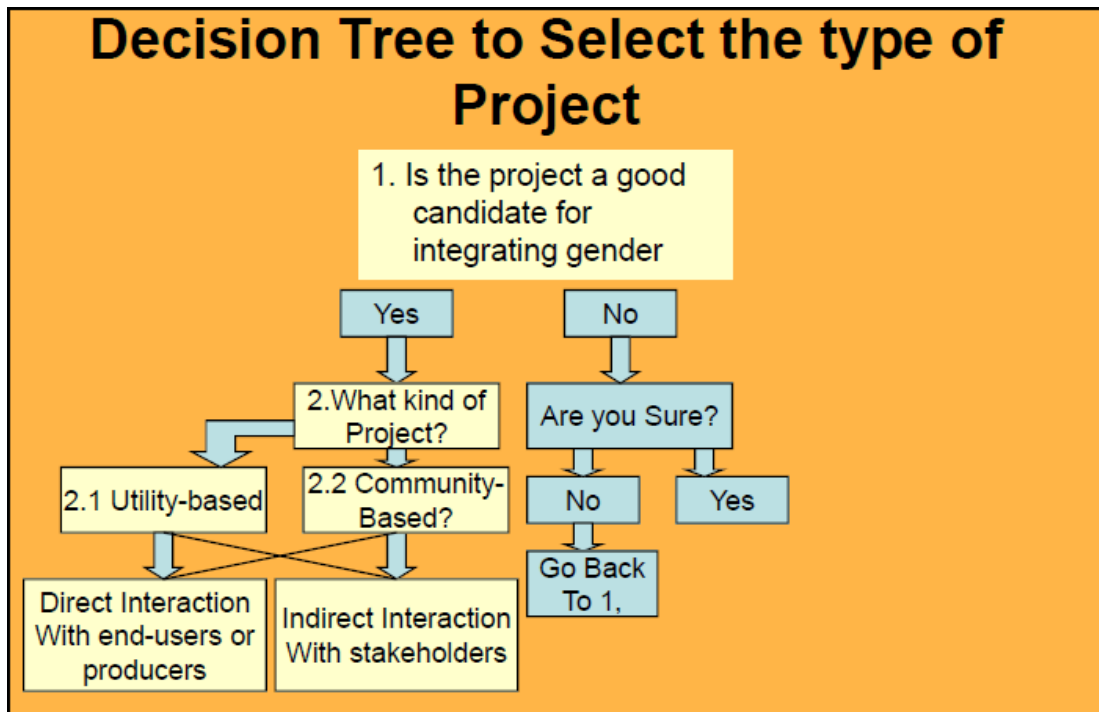
Gender Screening Questions	Why Ask?	Where to Find Information	What to do? Examples of design features that can reduce risks and enhance development effectiveness
Country Context Gender Screening			
<p>Does the country have policies or laws related to gender equality (eg. gender equality policy, labor law, laws governing property ownership, civic participation)?</p> <p>Do the energy sector strategies/policies address gender issues?</p>	<p>Projects that ignore gender policies risk unintentionally undermining of the ability of the country to implement them.</p>	<p>--Bank and other country gender assessment --Ministry responsible for women/gender --UNDP National Human Development Reports</p>	<p>--Include the gender related policies in the background section of the PCN and PAD, and the operational manual for the project implementation team.</p>
<p>Are there key social, cultural or legal constraints on female participation in and benefits from the</p>	<p>---Traditional land tenure often limits women’s access to energy assets and modern energy business opportunities.</p>	<p>--Bank and other country gender assessments --Poverty and Vulnerability Impact Assessments</p>	<p>--Set targets for female participation on energy decision-making bodies --Include women in project consultations</p>

project?	<p>--In most contexts energy is viewed as a male domain. Men predominate in energy jobs, as well as leadership and decision-making in ministries, private sector energy enterprises, utility boards and committees.</p> <p>--Traditions may limit women's mobility and access to employment and other benefits of energy projects.</p>	--Rapid appraisal	<p>--Strengthen awareness and capacity of implementing agency to address gender issues in energy-- Coordinate with the Ministry in charge of gender/women's affairs as well as women's NGOs concerned about female mobility and empowerment.</p>
<p>Do women and men have different energy needs and access to energy assets? Does this vary by other social characteristics (age, ethnic, indigenous, or minority status, rural versus urban locale)?</p>	<p>Males and females have different energy needs based on their gender roles and responsibilities . For example:</p> <p>-----Women and girls often spend hours collecting fuelwood that can be reduced by fuel efficient cookstoves.</p> <p>-----Men may place higher priority on energy for irrigation pumps. Women often lack the resources to pay for cleaner , safer fuels</p>	<p>--Bank and other country gender assessments</p> <p>--Demographic and Health Surveys</p> <p>--Household Budget Surveys/Income and Expenditure Surveys</p> <p>--Special studies</p> <p>--Rapid Appraisal</p>	<p>-- Consult women as well as men about energy needs and constraints</p> <p>-- Address these differences in project component designs.</p>
Project Design Gender Screening			
<p>Could the project place poor people at greater risk of livelihood loss or harm? Could this risk be greater for women than men?</p>	<p>--When key gender issues are not taken into account, women and minorities bear more of the risks and men and elites receive more of the benefits of energy projects, negatively effecting poverty reduction and gender equity.</p>	<p>--Stakeholder analysis</p> <p>--Poverty and Social Impact Assessments</p> <p>--Consultation</p>	<p>--Conduct gender inclusive risk analysis</p> <p>--Involve women and other excluded groups in energy project planning</p> <p>-- Design projects to response to women's energy needs and priorities are well as men's</p>
<p>Does the project design fail to address important</p>	<p>--Indoor air pollution from wood smoke</p>	<p>--Stakeholder analysis</p> <p>--Poverty and Social</p>	<p>--Conduct gender inclusive risk analysis</p>

<p>risks faced by women?</p>	<p>disproportionately affects women and children with respiratory ailments. --Women are more vulnerable to violence and crime when lighting in streets and other public spaces in inadequate.</p>	<p>Impact Assessments --Demographic and Health Surveys --Consultation</p>	<p>--Involve women and other excluded groups in energy project planning -- Design projects to response to women's energy needs and priorities are well as men's --Provide low interest loans for connection fees or fuel efficient wood stoves --use social accountability tools (eg service delivery scorecards) inclusively</p>
<p>Will the project create employment and/or entrepreneurial opportunities? ----Is employment in the energy sector open to women? Are women employed in decision-making positions? ----Do women entrepreneurs have opportunities to initiate modern energy distribution services?</p>	<p>--Energy sector is often viewed as a male domain at all levels from Ministries down to small and microenterprises. This excludes females from economic opportunities and limits inputs into decision-making to the male perspective. --Lack of title to land (as collateral) limits women entrepreneurs from receiving loans for business.</p>	<p>--National labor statistics</p>	<p>- - Equal pay for equal work --Gender equitable hiring practices. -- Targeted communication to females on opportunities in energy at technical and nontechnical levels. --Skills training for females in energy enterprise development.</p>
<p>Does the project include privatization of energy generation, transmission, and distribution?</p>	<p>In privatization of the energy sector , women are often more negatively impacted than men. --Includes the wives of redundant male government workers as well as redundant female workers. --If tariffs increase, poor may not be able to pay for electricity</p>	<p>--National Labor statistics -- Living standards measurement surveys</p>	<p>-- Provide alternative livelihoods training for women and men (including redundant female workers and the wives of redundant male workers as well as the men) --Regulate tariffs to ensure affordability for the poor --Provide credit to the poor for connection fees ----use social accountability tools (eg service delivery scorecards) inclusively</p>
<p>Will the project trigger</p>	<p>--Women are more vulnerable to negative impacts of relocation or</p>		<p>--Minimize displacement and resettlement- --Sex disaggregate the</p>

<p>social or environmental safeguards (eg.involuntary displacement and resettlement)?</p>	<p>environmental degradation and resulting loss of livelihood because their assets are more limited. --Compensation to male heads of households does not necessarily benefit other members of the household. --Groups of women can be effective mobilizers for participatory resettlement planning, or natural resource management.</p>		<p>census of persons affected --use an inclusive, participatory approach to resettlement planning or natural resources management --provide livelihood options for displaced street vendors, squatters, and other people losing use rights to resources and space -- provide a range of options for compensation --Include measures to ensure that females receive compensation (eg. joint titles to property, individual bank accounts)</p>
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Annex 6: Design Tools for Sector Strategies and Projects



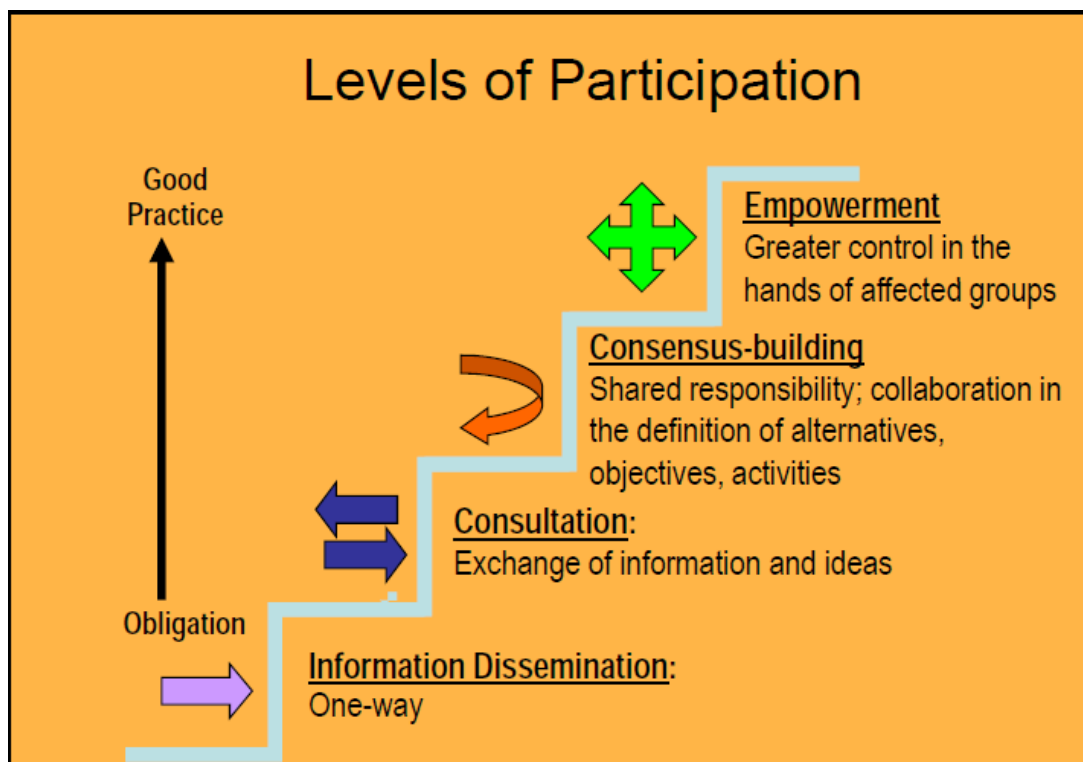
Six points for Success: Lessons Learned

- Clear **gender objective** in DOs
- Clear identification of gender questions: **baseline** survey with gender-disaggregated **data**
- Specific **design feature/elements** to address gender issues.
- Project "**Gender Action Plan**" for Implementation
- Earmarked funds in project **budget**
- Performance and Impact **Indicators** identified
- **+**
- *Gender-sensitive* staff and/or social scientists in the team
- *Administrative budget to do the work*

Design Tool and the Project Cycle

DATA	Understand the issues	Project Identification (WB Concept Note)
GENDER OBJECTIVES	What gender results we want from the Project	Project Appraisal Document
GENDER DESIGN ELEMENTS	What elements needed to achieve the gender results	Project Description in Appraisal Document
BUDGET	Will there be a budget in the project to implement the gender elements	Project Appraisal Documents: Costs and Financing Plan
IMPLEMENTATION PLAN	Who will be responsible for implementing the Gender Elements? What will be the implementation schedule What decisions are needed and when?	Project Appraisal Documentation Project Launch Documentation
PERFORMANCE MONITORING and IMPACT INDICATORS	What indicators to monitor results and Impacts as a function of expected results	Project Appraisal Report Supervision Reports Implementation Completion Reports
RESSOURCES/INCENTIVES ■budget ■Gender sensitive staff/social scientists		These are the resources needed during project preparation, appraisal, and supervision

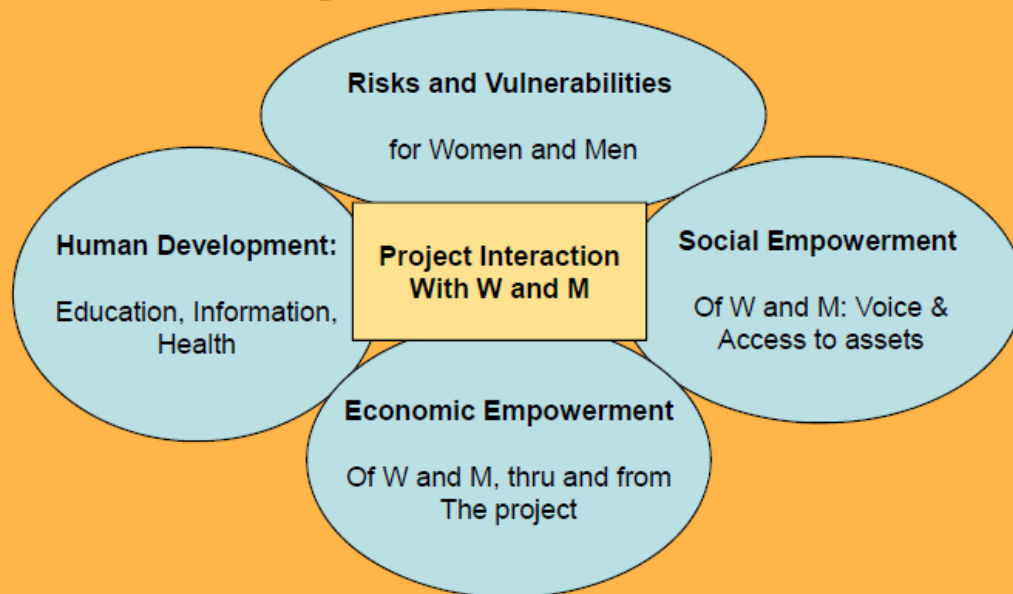
Levels of Participation



Some Considerations for Project Design from a Gender Perspective

- **Conjunctive Development:** full returns on energy investments will need other interventions: e.g. rural electrification will impact access to education if boys and girls are given sufficient time to study
→ investment in energy infrastructure/services + 'social engineering'
- **Complementarity:** energy is needed to increase productivity & create economic activities and social benefits, which in turn determine return on energy investments
→ investments in energy services + productive uses
→ Social Infrastructure (clinics) + Renewable Energy
- **Sequencing:** improving access to cooking fuels rural footpaths first may yield higher returns than improved motorways (women safety and time saving)
→ understanding priorities and expressed needs within communities and social groups
- **Prerequisites:** voice and representation of all social groups
→ Social empowerment and human development interventions prerequisites for economic empowerment

Framework to identify & understand gender issues



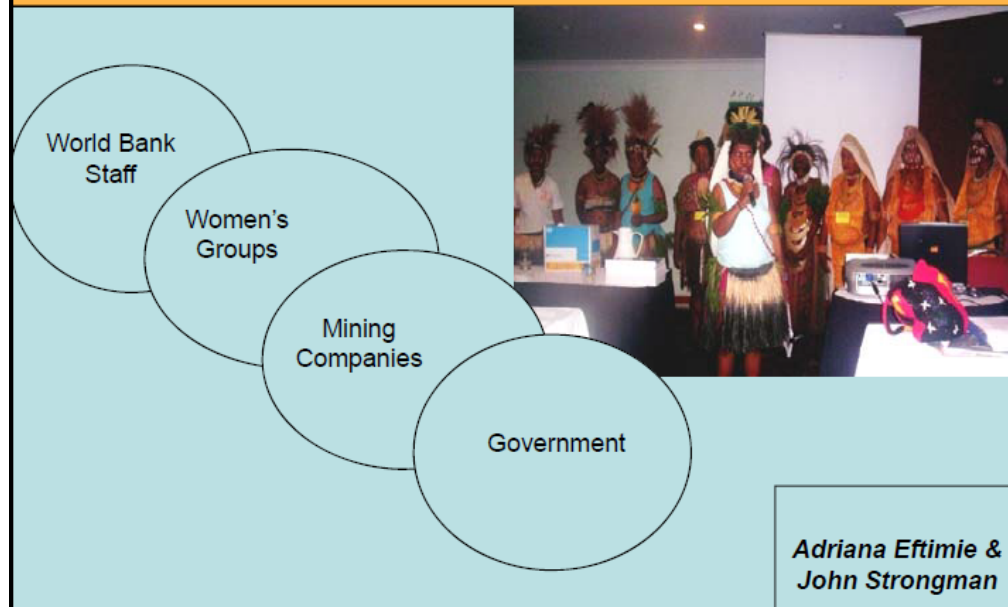
EXAMPLES of TOOL USES

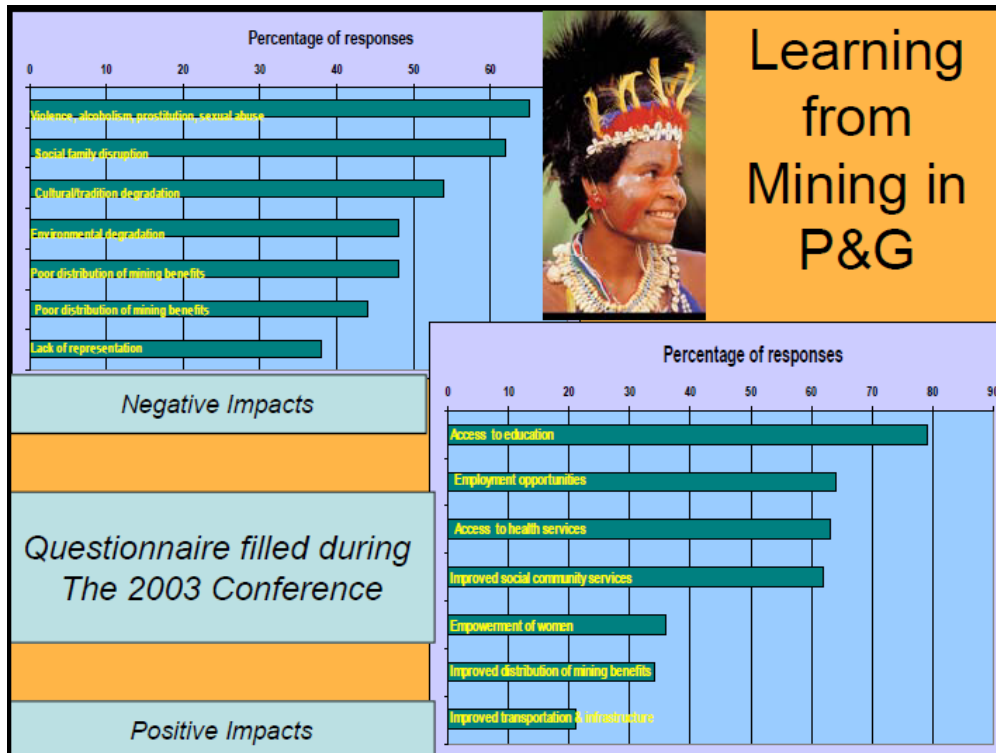
Gender Action Plan for Caracas Slum Upgrading Project

Five Main Elements in the Gender Action Plan:

1. **Administrative Element:** Revision of the Project Implementation Manual to introduce Gender Equality.
2. **Training workshops** for men and women from the project management unit and beneficiaries on women's rights, leadership and domestic violence.
3. **Leadership:** FUNDACOMUN (implementing agency) appointed a woman president, who took the agenda forward
4. **Representation:** High proportion of infrastructure maintenance committee members are women
5. **Employment:**
 - Project ensured women's participation at all levels - especially in implementation and monitoring.
 - Equal number of men and women as “neighborhood inspectors” in a supervisory role.

Learning from the Mining Sector in Papua & New Guinea





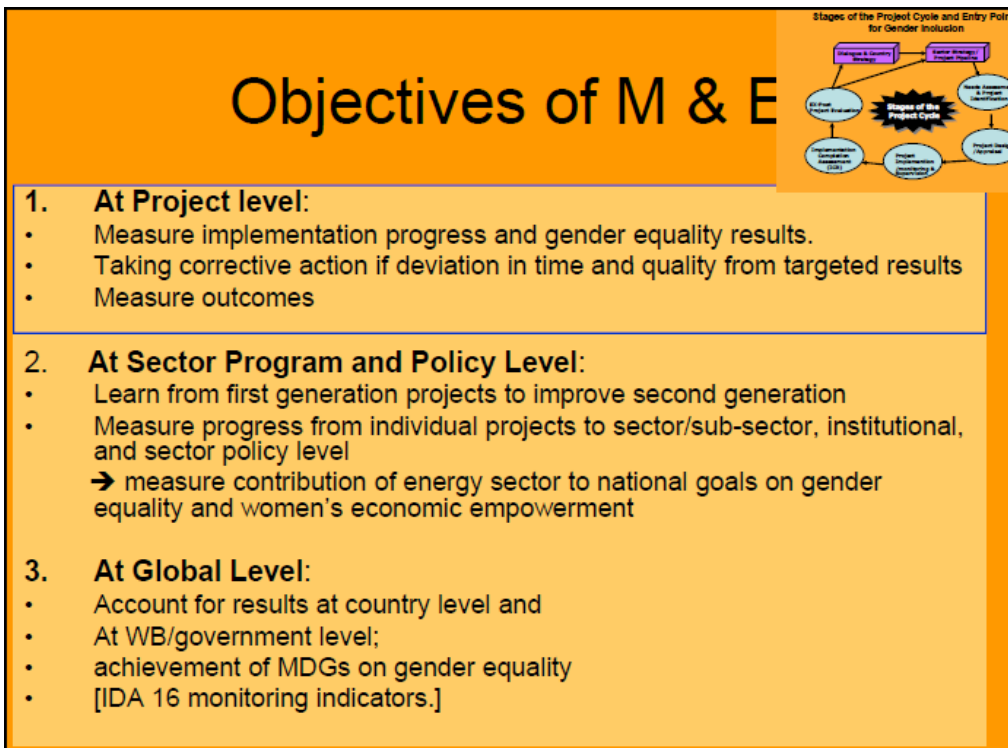
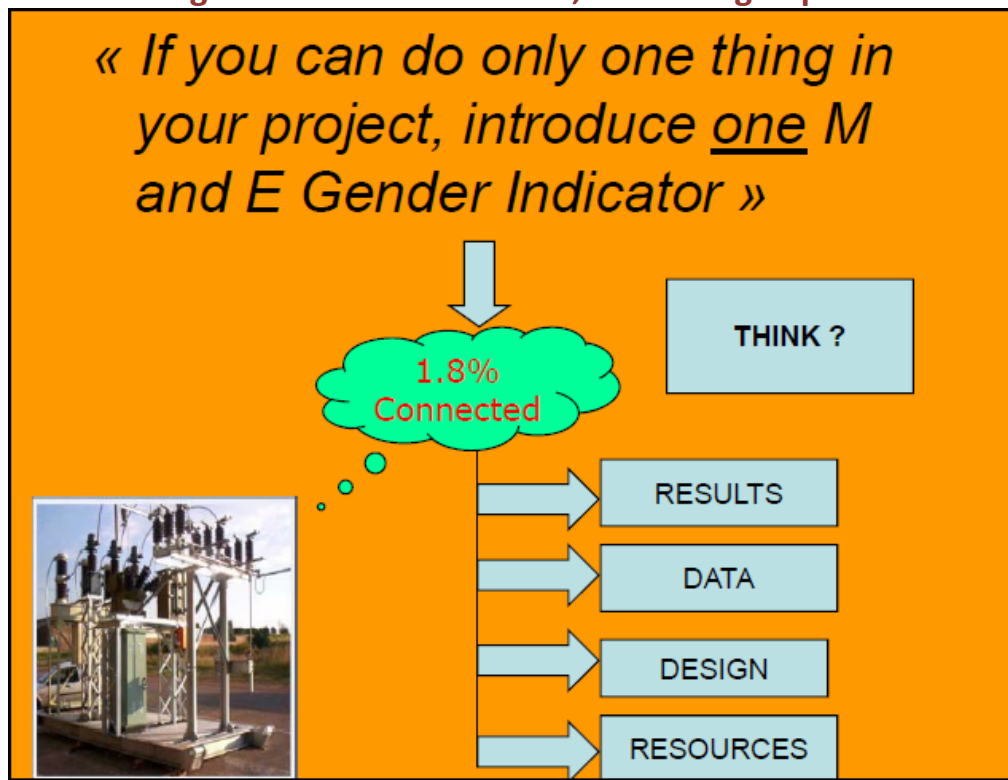
- ## Actions Identified for Economic Empowerment
- 
- **Companies**
 - Affirmative action for greater employment of women
 - Spin-off jobs aimed at women
 - **Communities and NGOs**
 - Men and women equally represented as agents for community level benefit distribution
 - Micro-credits for women's business/cottage industries – supported by training in accounting, marketing etc
 - **Government**
 - Dept. of Mining to direct a percentage of compensation and benefits to support community-based Sustainable Development Programs including women's projects

Actions Identified for Social Empowerment

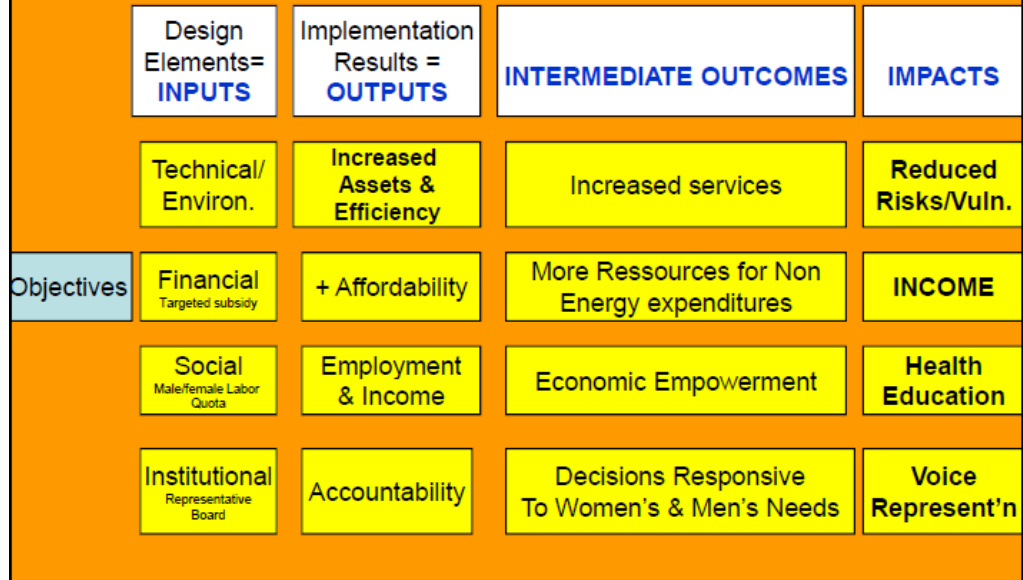


- **Companies**
 - Appointment of gender desk for women's issues
 - Include community women representatives in discussions at all stages of mine life (exploration to mine closure)
- **Communities and NGOs**
 - Select and support women to represent community concerns in committee and forums
 - Liaise with local government on issues of concern to women
- **Government**
 - Involve women in Mine Review Committee and Development Planning Committee
 - Establish gender desks in Dept of Mining; local governments

Annex 7: Monitoring Performance & Results; Evaluating Impacts and Outcomes



Results and Impact Framework



How to do it?

Indicators	Choice of Indicators
Tools	Surveys: 3 Focus Groups: SPN missions Asking the Right Questions
Institutional Set-up	Organization Community involvement Trained Staff Technical Support
Methodology to analyze results	Design Methodology Trained Staff

Asking the Right Questions in Baseline, Monitoring & Impact Surveys: Energy

Box 9.6 Topics for Survey Questionnaires

- Socioeconomic profile of actual and potential beneficiaries and customers
- Fuel and energy use before improved electricity services, including energy from all sources, such as candles, biomass, batteries, electric grid, and diesel generator sets
- Monthly expenditures on fuels and energy, by source
- Potential and actual willingness to pay for energy services, by application
- Energy use as it relates to substitutes for improved electricity services (kerosene, candles, and others)
- Energy use as it relates to substitutes for improved cooking/heating/cooling services (biomass, kerosene, paraffin, and ice)
- Reasons for not connecting to the grid or purchasing improved energy services
- Barriers to the adoption of improved electricity or other technologies and services
- Incentives to overcome barriers to adoption of improved electricity or other technologies and services
- Appliances in households and small businesses, including those with and without electricity
- Time use (men and women) as it relates to existing energy use and appliances.

Source: ESMAP 2003a.

Examples in Gender Informed Results and Impacts Indicators (1)

Baseline Energy Access and Use Data

- Per capita energy consumption for women and men
- Share of non-commercial energy used by women and men
- Purposes for which energy is used by women and men
- Fuel used by the household for cooking and heating
- Amount of time spent and the effort made by women and men in providing energy for their activities
- Amount women and men pay for energy
- Relative risks faced by women and men, such as exposure to fumes from open fires for cooking and heating

Changes in Time Use for Domestic Tasks

- Reduced time and labor required for female household chores
- Reduction in the amount of time and/or money spent by women and men to obtain energy supplies (fuelwood, charcoal)
- Increase in use of energy-related appliances to reduce domestic chores
- Amount of time spent by women compared with men on rest, relaxation and learning activities

Improved Health

- Reduction in the number/percentage of women and children visiting clinics for respiratory or eye conditions
- Increased access to clean water and sanitation

Examples in Gender Informed Results Indicators (2)

Education

- Increased school attendance of girls and boys
- Increased education levels for girls and boys

Economic Empowerment

- Increased and diversified income and greater productivity for women and men
- More time for women to engage in income earning activities
- Expanded food production for sale and household consumption
- Number/percentage of women and men involved in energy-related employment and training
- Profit from woman-owned small and medium energy enterprises

Social Empowerment

- Increased participation of women in community decision-making on energy
- Number/percentage of women and men involved in energy policy dialogue
- Number/percentage of women and men on 'utility' boards

Energy Sustainability

- Number/percentage of women and men adopting energy-saving technologies
- Number/percentage of women and men trained to use alternative technologies
- Increased male and female awareness of energy technology options

Issues

- **Design** during project preparation → need for baseline survey
- **Integration of Indicators** into Results Framework → selectivity vs. comprehensiveness?
- **Measuring impacts** → need for control group
- **Human resources**: staff training or contract institution (university, NGO, consulting firm)
- **Budget**: how much can you spend on M and E?




Using the Framework: Outcome on Economic Empowerment Senegal- Rural Water Supply

Type of Impact	Degree of impact by scheme		Specific Outcome
	Grant Aid	Technical Cooperation	
Time Saved	High	Low	Time for water collection has been shortened from <u>5-6 hours to about 2 hours per day</u> . Labor load has also been reduced
Productivity	High	Low	Improvements were seen in raising livestock because of <u>increased water supply</u>
Income	Middle	Low	<u>Diversification of vegetable</u> cultivation were seen because of increase in water supply which became available during <u>dry season</u>

Photo



Using the Framework: Outcome on Social Empowerment Senegal – Rural Water Supply (2)

Type of Impact	Degree of impact		Specific Outcome	
	Grant Aid	Technical Cooperation		
Dignity	Low	High	<u>Confidence</u> has been built to do basic repairs by themselves	
			Women have gained small savings from CDA. This is <u>significant</u> in a traditional rural society.	
Equal Voice: Individual, Household, Community	Low	High	<u>By regulation, 1/3 or more</u> of the management members are now women	
			Women has become <u>water managers</u> from just being <u>water users</u> 10% (90s) => 30~50% (present)	
Access to administrative, financial, and Technical	Low	Middle	<u>70% of the water fee collectors</u> are <u>women</u>	

Using the Framework: Outcome on Human Development Senegal Rural Water Supply (3)

Type of Impact	Degree of impact		Specific Outcome
	Grant Aid	Technical Cooperation	
Basic Needs	High	Middle	Access to safe water has been secured (for about 300,000 people) Sustainable operation is secured (shortening of repair period 2 years => 5 months)
Access to Health	High	High	Cases of <u>diarrhea</u> decreased by 30% with the delivery of safe water Further improvement in health achieved through better ways of transporting water and by providing education on sanitary ways of storing water
Access to Education	High	Middle	Drop-out rate in elementary schools has decreased School enrollment is encouraged through hygiene education in schools

Text book promoting better ways to handle water Photo of a class teaching water and sanitation



Annex 8: Briefs for Field Trips

Gender and Energy Capacity Building Workshop for South Asia

Briefs for Field trip on June 16, 2010

During the field trip the programs of the Rural Electrification Board and non government Organization like Grameen Shakti and Rural Services Foundation will be visited in Mawna upazila of Gazipur district and Singair upazila under Manikganj district. The participants will be divided into 4 groups 2 groups will go to Singair and 2 Groups to Mawna. Group A is for Singair and Group B for Mawna. The detailed schedule is enclosed. The field trips have been organized to visit the programs managed by the Rural Electrification Board (REB), the Infrastructure Development Company Limited (IDCOL) and by two NGOs: Grameen Shakti and the Rural Services Foundation. A brief description of their programs is given.

Rural Electrification Board (REB)

The Bangladesh Rural Electrification (RE) Program was founded with a Presidential Ordinance in October 1977 that established the Rural Electrification Board (REB) as the semi-autonomous government agency reporting to the Ministry of Power Energy and Minerals Resources. which was responsible for electrifying rural Bangladesh. Since its inception, the purpose of the program has been to use electricity as a means of creating opportunities for improving agricultural production and enhancing socio-economic development in rural areas, whereby there would be improvements in the standard of living and quality of life for the rural people.

Today there are 70 operating rural electric cooperatives called Palli Bidyut Samity (PBS), which bring service to approximately 79,00,000 new connection being made and more than 14,000 kms of line being constructed each year. To achieve the objectives of rural electrification program at the implementation level, the Board established Palli Bidyut Samities (PBS) [which means Rural Electric Societies in English] based on the model of Rural Electric Co-operatives in USA under the universal principle of co-operation, democratic decentralization, and ownership by consumers. A PBS, which owns, operates, and manages a rural distribution system within its area of jurisdiction is an autonomous organization registered with REB. The member consumers participate in policy making of the PBS through elected representatives to the PBS governing body known as Board of Directors. It is the ultimate goal to bring all the villages of Bangladesh under electrification by the year 2020. Under the program which started in 1980, about 45% villages had already been brought under electrification by 2005, the remaining villages to be covered by 2020 under the long term-plan.

REB has introduced solar home systems for the first time in Bangladesh in 1993 through the project "Diffusion of Renewable Energy Technologies (aided by France)". Since then, REB has installed 14,000 SHS, ranging from 40wp to 100wp. Customers' monthly bills span from TK 171 to TK363; a GEF grant is applied to reduce the cost of the capital cost of the systems. REB has managed about \$15 million of donor financing for several SHS projects. The demand for SHS is very strong, as demonstrated by a recent consumer survey. One of REB's significant contributions has been to provide training on SHS to many NGOs and local governments who have in turned engaged in similar types of activity.

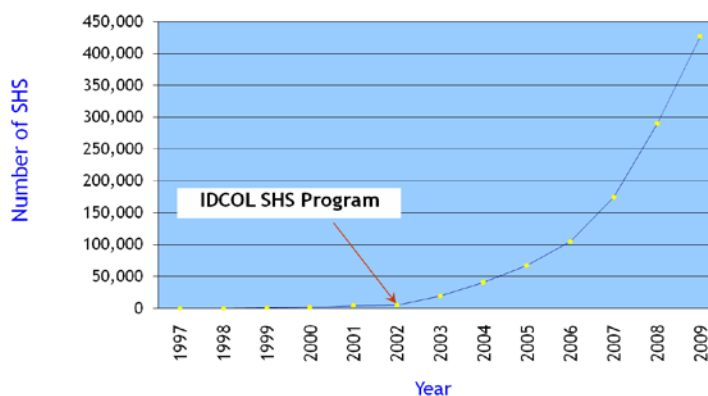
Infrastructure Development Company Limited (IDCOL)

IDCOL was established on May 1997 as a joint initiative of the Government of Bangladesh (GoB) and the World Bank. The Company was licensed by Bangladesh Bank as a Non Bank Financial Institution (NBFI) on 5 January 1998. Since its inception, IDCOL is playing a major role in bridging the financing gap for developing medium and large-scale infrastructure as well as renewable energy projects in Bangladesh. Through its participation in financing of infrastructure projects, IDCOL provides subsidies, soft financing, and necessary technical support to the private sector with an objective to energize rural Bangladesh in a sustainable manner.

Renewable energy is a relatively new concept in Bangladesh. In 2002, IDCOL, with support from the World Bank and the Global Environmental Facility (GEF), started implementing the first comprehensive renewable energy program in Bangladesh by disseminating solar home systems in the off-grid rural areas. In 2006, with support from SNV, the Netherlands, and KfW, Germany, IDCOL undertook a nationwide program on domestic biogas. Lately, IDCOL started promoting new and emerging renewable energy technologies by financing several pilot projects i.e. biomass gasification-based power plant, electricity from biogas, solar irrigation pumps etc. Today, IDCOL has emerged as the largest promoter and financier in the renewable energy sector of Bangladesh.

IDCOL Solar Home System (SHS) Program

SHS is a convenient mode of supplying power for small electrical loads such as lights, radio/cassette players, mobile phone chargers, and black and white TV. Started in 2002, IDCOL SHS Program had an initial target to finance installation of 50,000 solar home systems by July 2008. The target was achieved in September 2005, almost three years ahead of schedule. IDCOL now has a revised target to finance 1,000,000 solar home systems by 2012 with additional financial support from the World Bank, GTZ, KfW, IDB, and ADB. Till April 2010, IDCOL financed the installation of 518,862 SHSs all over the country. Currently, about 25,000 solar home systems are being installed every month under the program.



The program is being implemented through 23 Partner Organizations (POs) selected by IDCOL, Grameen Shakti, BRAC Foundation and RSF to name a few. The role of the POs working under the program is to

identify project areas, select potential customers, install systems, provide maintenance support, and extend loans to the households. IDCOL provides subsidies and refinancing to its POs, sets technical specification for solar equipments, creates awareness, provides training support, and monitors PO's performance.

IDCOL provides two types of grants – 'Buy-down grants' to the households to lower the costs of SHS to final customers, and 'Institutional Development grants' to the POs to build their institutional capacity. The subsidy amount decreases as more solar home systems get sold, to allow the commercial sector to transition in as demand grows.

Households are required to pay a minimum of ten percent of the system cost as down-payment. The remaining amount can be paid either through direct payment or through credit from the POs. Different POs extend credit on different terms and conditions. The loan tenor varies from 1 to 5 years, and the interest rate varies from 8% to 15% per annum. IDCOL offers a refinancing facility with 6-10 year maturity, 1-2 year grace period and 6%-8% interest annual interest rate to its POs.

Till September 2009, 15,000 new jobs have been created by the program. Moreover, the program annually reduces consumption of about 47 million liters or kerosene and lowers the country's foreign currency outlays for import payments. In addition, the estimated annual GHG emission reduction by the program is more than 100,000 tonnes by 2012.

National Domestic Biogas and Manure Program

Bangladesh has a great potential for Biogas technology. The cattle population including buffaloes is about 24 million (2005-06), which yield about 240 million kg of cattle wastes per day. These wastes have a potential for production of 8.6 million cubic meter (m³) of biogas. If even 50% of the cattle wastes could be used for biogas production, about 1.44 million biogas plants with capacity of 3 m³ each could be set up. Such a biogas plant can provide the necessary energy requirements for cooking and lighting for a family of 8-10 members. Apart from producing energy, the treated slurry produced as a bi-product from biogas digesters is a very good organic fertilizer.

The National Domestic Biogas and Manure Program (NDBMP) is currently the largest biogas program of the country implemented by IDCOL with support from SNV, Netherlands and KfW, Germany. Under this program, a total of 32,000 domestic size biogas plants are planned to be constructed by 2012. Till September 2009, a total of 9,500 biogas plants have been constructed. 30 partner organizations (PO), mostly NGOs and private entrepreneurs, have been engaged in this regard.

In a typical IDCOL financed biogas plant, the subsidy is BDT 9,000 (USD 130), the household's contribution is 15% of the plant cost, and the remaining is a micro-credit loan from MFIs at 10% - 12% flat interest rate and for a period of maximum two years. Since MFIs have limited source of fund, IDCOL refinances 80% of the MFI loan at a 6% interest rate for a period of seven-year with one-year grace period.

Other Renewable Energy and Energy Efficiency Programs

Biomass gasification based power plants

Bangladesh produces about 40 – 45 million tons of paddy annually which produces 8 – 9 million tons of rice husk, taking a 20% yield of husk. About half of the husk is used for energy applications such as domestic cooking, rice parboiling etc. The remaining 4 million tons of husk may be used for power generation using biomass gasification technology. This amount is sufficient for running power plants equivalent to 400 MW of capacity considering 2 kg of husk consumption per kWh.

IDCOL has recently financed a 250KW biomass gasification based power plant at Kapasia, Gazipur on a pilot basis. The plant uses rice husk for power generation and supplies grid quality power to 500 households and commercial entities of that area. IDCOL signed a participation agreement with another 400KW rice husk gasification based power plant. IDCOL has a target to finance 12 biomass gasification based power plants equivalent to 5 MW of capacity by 2012.

Biogas based power plants

Biogas generated from poultry and cattle waste can also be used for power generation. Cattle population (24 million) has the potential for 8.6 million m³ of biogas per day. Total poultry population of Bangladesh is 233 million (2005-06) which also has a potential for production of 1.7 million m³ of biogas per day. 50% of this produced biogas has the capacity to run power plants equivalent to 350 MW considering 0.752 m³ of biogas consumption per kWh.

A 50KW biogas based power plant has been financed by IDCOL. Electricity generated from the plant is consumed for running a poultry farm of 30,000 birds. Liquid bio-fertilizer produced from the plant is used in crop production and fish farms. Another 250KW biogas based power plant is currently under construction. IDCOL has set its target to finance another 100 biogas based power plants by 2012.

Solar Irrigation pumps

IDCOL is in the process of financing an 11.2KW solar photovoltaic based submersible water pump to be located at Shapahar, Naogaon. Once completed, the project is expected to provide irrigation facilities to 12.56 hectares of land owned by 75 farmers. If successful, solar photovoltaic based water pumping solution for irrigation will be implemented in larger scale in Bangladesh

Bangladesh Efficient Lighting Initiative Program

In order to reduce electricity demand as well as green house gas emissions, the Government of Bangladesh has recently undertaken an Efficient Lighting Initiative Program under which 10.5 million incandescent bulbs will be replaced with compact fluorescent lamps (CFLs) with financial support from the World Bank. IDCOL has been proposed to act as the Coordinating/ Managing Entity to avail CDM benefits for the program. The first phase of the program was expected to start in February 2010.

The Energy sector in Bangladesh is capacity constrained both in terms of energy resources and energy commodities. Natural gas reserves, the country's largest source of indigenous fossil fuel and electricity generation, are fast depleting. Considering the present huge power load-shedding and scarcity of natural gas, government has set a target to meet 5% of total power demand by 2015 and 10% of total power demand by 2020 from renewable energy sources. IDCOL's contribution in promoting renewable energy technologies in Bangladesh will definitely supplement the government's vision and make it a sustainable energy source for the future.

Grameen Shakti

Grameen Shakti has programs for installation of solar home systems, (SHS) improved cook stoves, and biogas plants. Up to October 2008 Grameen Shakti covered all the 64 districts, and 455 upzilas out of 464. They have covered 38,000 villages and 11 islands. Their number of beneficiaries exceeds 2 million people. Their total number of employees is 3,000 and most of them are engineers. They have installed 205,000 SHSs (over 8000 are being installed a month). They have installed 6,000 biogas plants and 20,000 improved cook stoves. The number of trained technicians is 2,575, and number of trained customers is 86,500; the number of customers with full ownership is 47,500. The number of LED installed in 15,885 lamps.

Grameen Shakti also set up 30 Grameen Technology Centers (GTCs) in the rural areas to train women as Solar and Improved Cook stove Technicians. GTCs are providing and assembling SHS accessories such as charge controllers, mobile phone chargers, lampshades, etc. with the help of trained technicians. Women members from user households are also receiving training on repair and maintenance of SHSs. GTCs are also running special exposure programs for rural school children, especially for girl children.

Rural Services Foundation

The objective of the Rural Services Foundation is to work in all areas of environment, social and human development, including community development, economic and business development, trade, enterprise, conventional and renewable energy, and health. It was incorporated in 2006. The major activities are the installation of SHS (Solar Home System), the construction of biogas plants, and the dissemination of ICS (Improved Cooking Stove). RSF's center for human resource development links development between rural and urban growth centers under Agro projects, Contract farming, and establishment of supply chain development models etc. RSF has enlisted with IDCOL/ World Bank solar home system program as PO (Partner Organization) since July 2006 and has opened 310 unit offices in remote rural areas of Bangladesh. Before opening a unit office RSF conducts a primary survey to find out the energy needs of the locality and their socio-economic condition. To support the operational and field activities, RSF has deployed 1,700 staff, and most of them are technical professionals.

Annex 9: Questions for Field Trips

Questions for the Field Trips

The four groups will have the opportunity to see the operations of the Rural Electrification Board, both for grid extensions and off-grid electricity supply, and other activities. Likewise, all the groups will have the opportunity to visit the training center of Grameen Shakti and interact with families, SMEs, and rural industries which have benefitted from various types of energy services supplied from a range of fuels and technologies. The objective of the field visits is for participants to see firsthand how gender and energy are working together in projects on the ground. A full description of the field visits is attached.

REPORTING BACK: Some questions to keep in mind during the field trips are below. It is expected that upon the group's return there will be a report out back to the entire workshop audience. Please note these questions aim to get you started – they are by no means a questionnaire that are expected to be used systematically, and we trust that you will have your own rich set of questions in mind. You will need to agree amongst yourselves as to who will be the rapporteur for your group, and how you will want to organize yourselves to summarize your experience, capture, record and discuss the key learnings (During or after dinner is just a suggestion!). Each group report will take place on day 3 in the plenary and will not exceed 5 minutes.

1. **Data:** what data do you need and how would you collect them in order to:
 - identify gender questions, and
 - design gender responsive solutions?
2. **Gender-sensitive opportunities in the electricity value-chain:**
 - are there opportunities for women and men to contribute to power generation, transmission, and distribution? If so, which ones?
 - are there different opportunities in the grid and off-grid solutions? If so, which ones?
3. **Gender-sensitive opportunities in the biomass value-chain** (biogas, fuelwood or other biomass-based fuels):
 - are there opportunities for women and men to contribute to the development of the value-chain, if so which ones?
 - Can men and women influence the design of technology choice? If so, how?
4. **Benefits and risks from rural energy-services on women and men.** Using the four-petal framework discussed in the workshop prior to the field trip (economic empowerment, social empowerment/voice, welfare/quality of life, risks):
 - have women and men been given equal voice (in households or in the community) in the process of developing or acquiring the relevant energy services?
 - What have been the benefits of the services on the family's quality of life, by gender or age group? See if you can distinguish between direct benefits (e.g. studying at night) versus indirect benefits (e.g. better school performance).
 - What have been the economic benefits from the energy services? Are they accruing equally to women and men? Distinguish between employment, income, productivity, creation of new businesses? Should productive uses components be included in energy services projects?

- Are there some specific risks differentiated by gender which are associated with the development of energy services? If so, which ones? What measures help offset such risks?

5. Information and Training

- Is information and training provided equally to men and women?
- Have those informed/trained created new energy businesses? If so, how, and whom: women, men? If not, why not?

6. **Monitoring and Impact Indicators:** what indicators would you use and what kind of monitoring system would you put in place to follow-up progress and impacts on integrating gender in energy programs and projects?

DON'T HESITATE TO THINK OF RECOMMENDATIONS