

Gender Analysis of Measures Supported by Sustainable Energy Development (SED)

Project of GTZ, Bangladesh

By

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Executive Summary

The experience of SED program has revealed that several structural parameters are as critical to the success of the interventions as the fund itself. These are factors that affect people's lives through social changes and behavioral practices. Strong rapport with partner organizations have yielded a pattern of success in the activities undertaken by SED. There has been continuous effort in adapting the approach undertaken by the SED program to reach its desired goal in energy intervention. In addition to the national organizations, smaller NGOs play a significant role in overall performance of the program. Such organizations have a stronger role in incorporating benefits to women leading toward gender equality among the beneficiaries at the grass roots level.

Although gender is neither a primary target nor a guiding parameter for most activities, the output of SED program has directly affected women's lives in a positive manner. Significant improvement of living condition has occurred through better design of cooking stoves with reduced air pollution in the kitchen. Hence rural women directly benefit from such activities of SED. On the other hand, projects of SED with direct economic impact can be rationalized through savings in energy usage with consequent monetary benefit to individual entrepreneurs adopting the technology. Men typically benefit from these projects with better financial return.

At the field level the energy projects of SED has been analyzed from a perspective of roles and responsibilities of women and men in the interventions undertaken. Interviews were taken of the management staff, program implementation partner organizations and project beneficiaries.

Project does not have fixed target for women to be reached and empowered, hence there is no classification of activities in terms of roles and responsibilities of women and men. The study shows that the possibility of relief of women's labor was an obvious outcome of the interventions undertaken. SED set a social objective in certain cases to reduce the labor of women in carrying wood and improving their safety while cooking. Therefore the program is successful in delivering benefit with gender equity that meets the one of the goals of GTZ's gender strategy(1,2).

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During conceptualization and project designing the SED team typically makes visits to facilities and surveys the operational entities from an energy perspective. Observations and technical evaluations are done on energy issues and scope of improving energy efficiency is investigated in particular. Currently there is no particular requirement or interest for the team to seek for gender equity in their service provision. Hence very limited participation of women can be found in the different stages of the project cycle. However, whenever possible, women received some preference in creating partnership with SED, which can be enhanced through knowledge exchange.

Specific recommendations summarized below are based upon the gender audit of SED presented in this report. It is suggested that progressive steps should be taken by SED to manage a gender sensitive energy program.

1. Based upon GTZ's gender strategy a policy should be developed by SED to incorporate gender and energy issues into future energy programs.
2. Gender focus should extend from the early stage of project conceptualization and planning, and then continue upto project monitoring and evaluation. SED needs to identify the difference between women's and men's ability to participate during problem identification as well as other stages of project cycle.
3. ***SED should build gender awareness among its team members.*** Such awareness can be extended from management and professional staff to partner organizations of SED. Those staff of SED engaged in problem identification should be briefed on gender and energy.
4. SED needs to collect gender disaggregated data for project monitoring. Such data is essential for understanding the impact of energy interventions on people in a gender sensitive manner.
5. Increase women's participation at all levels from project planning to execution and monitoring.
6. SED should support women through capacity building in order to further enhance their scope of participation with measurable empowerment.
7. In strategy development make contact with organisations or NGO's with knowledge and experience of gender mainstreaming, and have them participate in strategy development and agenda setting.

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8. Projects that have matured and are being scaled up should particularly investigate their program to seek the opportunity of including women as service providers.
9. SED should show willingness to make space and strengthen women's participation in the organizational setup.
10. In order to be compatible with the social practices of rural household while having effective communication, SED should include a female member in their survey team engaged in project monitoring. This will ensure that women's concerns are adequately reflected in information collected.
11. The POs should be encouraged to include women members from the community join their team of supervisors, or become active members of committees for project implementation.
12. Difference in access to energy and control over resources related to energy should be addressed by SED partners.
13. All relevant documents of SED should be gender inclusive giving adequate account of men and women's relevance. Existing interactions of women should be recorded and acknowledged.
14. Program review, monitoring and evaluation documents of SED should have a section highlighting gender issues.
15. Impact of project on achieving gender equality should be noted during reporting. Allow staff to monitor project disbursements to ensure balanced outcome for both women and men.
16. SED should empower women through capacity building. In order to disseminate knowledge among rural women, it is suggested that a brief training on technology being implemented should be given to the rural women at the time of installation.

1. Introduction:

Gender Analysis of SED project of GTZ

Integration of gender and energy plays an important role in the outcome of various development projects. This is particularly true for programs like Sustainable Energy Development (SED) of GTZ, with a mandate (1,2) to improve energy access of grass root communities. Women and men are differently affected by the lack of access to affordable energy sources due to their roles and responsibilities at home and within the communities. Better understanding of gender based differences in benefits can assist in effective planning of project which are aimed at improving livelihood of rural communities. This report has been prepared to focus on the gender issues of SED in support of its project appraisal in August 2010, ensuring discussion of the impact of the project on gender equality in Bangladesh.

An organizational gender audit (3) of SED has been done through individual interviews of its staff members and stakeholders engaged in various energy projects. Under SED program multiple energy projects are undertaken with the common goal of improving access to energy for the rural communities with a measurable reduction of fuel consumption through improved energy efficiency. This study generates a baseline and identifies scope of improvement of gender mainstreaming operational activities of the team. This effort is an initial step toward creating gender awareness among the program participants of SED who are engaged in various ongoing energy projects.



2. Key Findings of the SED Program from a Gender Perspective:

Observation:

1. Access to information:

Technical investigation of the energy experts lay down the path to selection of technologies adopted by SED. Information on projects are disseminated to the potential beneficiaries through the partner organizations of SED. Direct connection with the potential entrepreneurs resulted in demonstration projects like improved rice parboiling system. Very limited scope of gender inclusion has been observed for dissemination of information for most technologies.

Success at the field level is strongly dependent on the available logistics of the POs and their effective participation in information dissemination. For the improved cookstove project (bondhu chula), women are closely attached as users. The families who are using them are very pleased with the outcome of their investment. Since the NGOs typically work directly with the women in the rural area, information is more readily available for them. On the other hand, the women from the suburban towns do not get information as easily. Much of the information on the benefits and satisfaction from the use of ICS is spread through word of mouth and neighboring women who visit the users. Public advertisements and announcements also play significant role in information dissemination.

2. Capacity building:

One of the most important contributions of SED program is capacity building of its partner organizations, entrepreneurs and beneficiaries. Under the SED program there is scope of creating opportunity for women to become equally qualified in providing the desired services. Limited attempt has been made by the program for capacity building of women. In case of training for cook stove construction,

engagement of women did not produce any success after the initial training. Hence the original business designs of SED did not work and focus was placed on men as service providers. Men became trainers and received training as supervisors, masons and other services, whereas women were encouraged to participate in a generic manner. However, currently the project has reached a stage of maturity and the respondents feel that if adequate training was given, women could also engage in construction and sales of improved stoves, since they are already engaged in various construction activities, especially in building stoves and basic housing in the rural areas.

3. Extension of technology:

- a. Extension of technologies is done through men in all the technologies introduced by SED.
- b. Participants at training of trainers, trainees, installers and supervisors are usually all men only. Monitoring is also done by men only. Apart from a very few, representatives of most POs are men only. This leaves marginal scope for women to engage in extension of technologies.
- c. Since all supervisors and masons of the PO are men, therefore technology is not directly extended through women.
- d. Formal advertising is done in the town center, with majority attendance by men. Women remain curious toward the technologies, and continue to collect information from the current users.

4. Benefits from technology:

Women are direct beneficiaries of the improved cook stove project, which include

- a. Reduced smoke
- b. Cleaner kitchen and utensils
- c. Lesser fuel-wood consumption for cooking
- d. Better atmosphere to rear children.
- e. All types of bio-fuel can be used.

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Apart from the improved stove project, women also benefit from the biogas project directly where the produced gas is used for cooking, which offer the same benefits listed above for improved cook stove. Efficient rice parboiling system and bio gas used for power generation are designed for commercial use and satisfactory return on investment. These activities focus on the energy efficiency improvement and adaptation of improved technology. Women seldom receive any financial benefit from the actions undertaken by SED since there is no targeted scope of income generation for women.

5. Policy Issues:

SED program views their energy related interventions as gender neutral, and does not identify how men and women are affected by energy policies at home, work and community as a whole. Differences in their roles are tacitly included in the program execution, but a policy toward a change is not seen. Within SED there is a need for policy, institutional and process-related reforms to address gender issues related to access to energy services. The program has the scope of sensitization of its management, staff, partners, beneficiaries and other relevant decision makers on gender issues. Hence there is a need for discussion on gender aspects of the interventions adopted by the SED program that can lead to a policy to be adopted following the gender strategy framework of GTZ. In such discussions on direct inclusion of women in energy policy matters should be focused.



Domestic use of poultry based biogas for household cooking with a gas stove.

3. Gender Analysis of SED and its Partner Organizations

i. Gender Analysis of SED Program

Existing gender strategy of GTZ has included gender goals in project appraisal and planning, and hence it is logically already inclusive within SED. However, program implementation of SED does not specifically target achieving these gender goals. As a natural outcome women are major beneficiaries of some of the projects undertaken by SED, whereas there is a lack of participation of women in the service provision arena. Out of the five management and technical personnel there are no women at present. No women even applied when SED recently advertized for a renewable energy expert, therefore there is no gender balance in technical staff within SED.

In the process of project conceptualization and planning, SED team typically makes visits to facilities and surveys the operational entities from an energy perspective. Observations and technical evaluations are done on energy issues and scope of improving energy efficiency is investigated in particular. The surveys do recognize the need to know if women will be affected negatively or not. The study shows that the possibility of relief of women's labor was an obvious

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outcome of the interventions undertaken. SED set an objective in some cases to reduce the labor of women in carrying wood and improving safety of women while cooking. Benefit to the women remained limited to that level without any scope of employment or income generation. Recruiting women did not produce any success after the initial training and hence the original business designs of SED did not work. Men were since targeted for capacity building as active partners to the projects, while women are only encouraged to participate. Whenever possible, women received some preference in creating partnership with SED, which helped both towards knowledge exchange.

The study finds that SED does not apply a gender-sensitive stakeholder consultation. According to their experience men and women both value the final outcome of better living condition. Whereas most women jointly take decision on adoption of a new technology, contact person for each household are mostly men. In the earlier stage of the improved cook stove project, an effort was made to include women's name as the contact person for the household. Consequent visits to the site have revealed that the villagers are unable to identify the women by their own names and the project monitoring team was unable to locate the beneficiary in several occasions. Such situation has resulted from the traditional nature of women being identified by their children or spouse's name, and hence their identity is lost from all formal procedures. *It is recommended that in households where cook stoves are being used women member of household should be encouraged to become the major contact person along with the male counterpart for the sake of operational ease. This gives a scope of establishing a woman's identity in her household purchase.*

It has also been noted that women have limited mobility and hence not particularly suitable for taking training for becoming a supervisor, technician or mason. Lack of women's participation within these positions of the ongoing programs is attributed to women's limitations in travelling at night, travelling long distances etc. A particular partner organization (PO) of SED has trained 90 individuals in total for dissemination of stoves among rural homes and small commercial outfits, none of whom are women. *An effort should be made to improve this situation through consultation of the stakeholders with an objective of reaching out for greater participation of women.*

ii. Gender aspect of Grameen Shakti (PO to GTZ) Biogas Program:

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Gameen Shakti (GS) is an active partner of the biogas program, improved cook stove and solar home system projects of GTZ. Biogas project of GS has been operational since last several years for generating biogas from cow dung and poultry droppings, with total installation of 8000 plants. In addition to grant and loan from IDCOL for installation of 11000 biogas plants, revolving fund from GTZ has resulted in installation of about 1000 biogas plants. At this stage there exists a scope of improving the program through appropriate gender strategy adopted by other similar programs (4).

Women are substantially underrepresented in the biogas program of GS. There are four consultants for the biogas program of Grameen Shakti with a total of 200 staff for solar, bio-gas and improved cook stove program. Unit offices of solar program are generally engaged in field implementation of the biogas program of GS. During the past years there has been a strict preference of GS not to recruit women in their operation for biogas dissemination. However, a female branch manager of Tangail became the most successful in sales of biogas plants in the recent past. Such evidence has changed the decision of the management and female staff is currently being employed by GS. There are technical centers of GS which concentrate on women's participation in energy services.

4. Gender Audit of SED

Table 1. Framework for Investigating Gender Approach in SED

<i>Project Step and Issues Addressed</i>	<i>Study Findings</i>	<i>Activity/ Source</i>
1. Conceptualization and Planning Background Information	Project appraisal and planning of GTZ has already included gender and hence it is inclusive within SED. However, technologies selected under SED program is being considered as gender neutral in its planning, and hence background information are not collected in a gender disaggregated manner.	Management Interview

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2. Planning: Gender and Beneficiaries	<p>Although project planning is taken up by GTZ, where gender aspect is highlighted, those involved within SED program planning and project identification are not adequately briefed on gender equity in energy issues in particular.</p> <p>Although Gender dimension of the project issues are not being addressed separately by the SED, in many cases direct beneficiaries of projects are women.</p>	Management Interview
5. Social Issues	<p>More than economic, it is the social benefit that comes as first priority to SED for most of their projects.</p> <p>Dissemination of improved stoves among rural households is a key project in which health of mother and child was targeted by SED management. In addition to saving fuel wood for cooking, the main objective of this project is to reduce indoor air pollution, and hence have a positive impact on women's health.</p> <p>Support to the small solar home system program via IDCOL has introduced affordable lighting to poorer households of the community. This program has direct benefit on women and children in particular.</p>	Analysis and consultation
6. Stakeholder analysis:	<p>Individuals and women's NGO's with knowledge and experience of gender mainstreaming have not participated in strategy development and agenda setting of SED.</p> <p>This demands gender awareness building among the project developers of SED/GTZ.</p>	Desk Analysis and consultations
7. Problem identification:	<p>SED has undertaken research on the potential implications of technologies being adopted and the road map toward achieving their goals. The analysis is mainly based upon information supplied only by technical experts and seldom takes gender into account.</p>	Management interview and desk analysis
8. Monitoring and supervision	<p>There are some constraints posed by local cultural practices which have impact on project implementation and planning. Due to the nature of social practices, male supervisors for the POs are unable to communicate with their women clients, who are mostly their true beneficiaries. Therefore, the women's concerns are not adequately reflected in the monitoring and supervision scheme of SED.</p>	Field interviews of PO and supervisors
9. Project Cycle	<p>SED needs to identify the difference between women's and men's ability to participate during the problem identification as well as other stages of project cycle.</p>	Consultation
10. Planning Process: Livelihood strategy analysis	<p>Given that the SED project is working with energy technology for cooking and biogas generation, it is directly improving livelihood outcomes of women and men.</p>	Desk Analysis

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<p>11.Current situation, context, and baseline</p>	<p>It is known that differences in access to and control over resources related to energy are not equal for men and women. Such differences are not being addressed by the projects under SED program.</p> <p>Although women are targeted as the major beneficiary in certain projects the project formulation process does not actively take into account women's knowledge.</p>	<p>Desk analysis and consultations</p>
<p>12.Project Formulation:</p>	<p>As a general practice the different roles and responsibilities of women and men are not being documented in the SED projects. Therefore the projects being developed also do not cater to any special needs of each group that may be there. For the records none of the background information are disaggregated by gender, age, and ethnic origin.</p>	<p>Consultation</p>
<p>13.External factors, likelihood of adoption and sustainability of intervention</p>	<p>It is expected that the SED projects will have positive impact on women and men, and also the family as a whole. Whereas men in particular, and the families in general, have better financial return from certain projects, women benefit from clean work environments.</p> <p>Such positive impact can be enhanced and extended further to the community by dissemination through NGOs and other civil society members.</p> <p>Social discriminatory factors like women's role in household chores, lack of time, etc influence women's ability to participate and benefit from the initiatives under taken by SED. Therefore, women are rarely engaged in income generation within the SED projects.</p> <p>Although benefit of adoption of technology is enjoyed by women through the SED program, the projects have not consciously and effectively created space and opportunity for women to participate in the project formulation or its execution.</p>	<p>Consultation</p>
<p>14.Household Community level</p>	<p>Participation of women in usage of appliances like improved stoves are discussed through village meetings organized by the POs who are NGOs. However constraints in implementation and women's views about the various proposed technology options and design features are not being sought by the project administrators of SED.</p>	<p>Consultation</p>

5. Scope of Involving Women in SED Projects

An account of gender equity requires identification of exact scope of participation of women and men in the activities undertaken by SED. As an essential goal of gender mainstreaming it is important to create the scope of involvement of men and women in all stages of project cycle. Since involvement of women as beneficiaries and men as service providers is default in most of the projects undertaken by SED, opportunity for women is limited. This section highlights the scope of involving women in these projects as a beneficiary and service provider.

Table 2. Technology Based Scope of Involving Women

Technology Options	Scope of Involving Women in the Sectors
Improved Cooking-Stove	<ul style="list-style-type: none"> • SED team should become aware of the gender issues related to dissemination of improved cook stove. • The POs can be encouraged to increase participation of women in the various activities related to stove sales, installation and maintenance. • Within the household women may be required to participate in the planning process of buying a cooking-stove. • For adaptation of this technology, women should take part in the installation process. • Women can analyze this technology to identify its problem. Such scope of knowledge sharing should be encouraged. • Women can become a team member for PO for proper monitoring and supervision.
Solar Home Systems	<ul style="list-style-type: none"> • Women member of the household can become involved when decision about using solar home system installation is taken.

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	<ul style="list-style-type: none"> • Women can take decision about the number of light and their location for solar home system. • Women can take part in proper operation and maintenance of solar home system. • Consumer training should include women. • Women can be requested to give a periodic feedback on the performance of the system.
Rice-Mills	<ul style="list-style-type: none"> • Rice Mill owners should become aware of the gender and safety issues related to plant operation. • Women should become familiar about the technology behind rice mill operation. • Women engaged in labor force should not be displaced. They can receive additional training and get engaged in the improved rice mill facility.
Bio-gas Plant	<ul style="list-style-type: none"> • Partners of SED should take views of men and women on the value of the proposed interventions and discuss their priorities. • Women can monitor and supervise the Bio-gas Plant for its smooth operation. • Women can use biogas for cooking and hence get direct benefit. • Women should participate in decision making on usage of biogas. • Women should be given basic information on the technology to raise their level of knowledge and be able to influence potential users.

6. Issues to be Raised for Gender Mainstreaming SED Program

In order to facilitate the process of gender mainstreaming SED program, it is important to identify the actions to be undertaken. Table 3 provides a list of possible activities that will assist the SED staff to gradually develop their Gender Action Plan.

Table 3 Checklist for Embedding a Gender and Energy Approach into SED Project Planning

Planning Process Step	Questions to Be Addressed
Conceptualization	1. Have those involved with the problem identification been briefed on gender and energy issues?
Objectives and expected outcomes	2. Is there a gender dimension to the issue being addressed by the project?
Collection of background information	3. Has consideration been given to doing a gender-sensitive energy needs assessment?
	4. Have individuals and women's NGO's with knowledge and experience of gender mainstreaming participated in strategy development and agenda setting?
Problem Identification and Stakeholder analysis	5. What is the difference between women's and men's ability to participate during the problem identification stage as well as in other stages of the project cycle?
<i>Project formulation</i>	6. Are the different roles and responsibilities of women and

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Planning Process Step	Questions to Be Addressed
<p>Current situation, context, and baseline, external factors influence gender strategy.</p> <p>Questions pertaining to likelihood of adoption and sustainability of intervention</p>	men documented and understood?
	7. What are the differences of access to energy services between women and men?
	8. Does the project formulation process take into account women's knowledge on the topic?
	<p>9. What are the expected positive and negative impacts on women and men as a result of the project?</p> <p>10. What are the factors (discriminatory attitudes, lack of time, etc.) that may influence women's ability to participate and benefit from the initiative?</p> <hr/> <p>11. Has the project consciously and effectively created space and opportunity for women community members to participate in the project formulation?</p>
<p>Project participation of women and men in implementation and constraints</p>	<p>12. Are women and men likely to make decisions regarding the adoption of the proposed intervention and participation in implementation?</p> <p>13. Will women or men be involved in maintenance and repair?</p> <p>14. Is training necessary? If so, what for and for whom?</p>
	15. Have the differences between women's and men's willingness and ability to contribute labour, materials, or money for project activities been determined?
	16. Will the initiative increase women's or men's workload during or after the initiative? Are there conflicting demands?
	17. Are women or men going to be involved in management and under what arrangements?
<p>Capacity Building</p>	18. Is there a need for capacity building in the areas of intervention? Do existing policies take into account gender?
	19. Do existing institutions have a framework for gender-

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Planning Process Step	Questions to Be Addressed
	sensitive stakeholder consultations? 20. Do women or men need training in project implementation?
Partner Selection for Project Implementation	21. Do the Partner Organizations (PO)s have the capacity to work using a gender sensitive approach?
	22. Has consideration been given to how the project design will address constraints in policies, institutions or processes?
Alternative Strategies	23. In looking at alternative strategies, has there been consideration of the possible benefits of strategies that both promote women's participation and work toward sustainable energy use?
	24. Given the proposed interventions, will the livelihood outcomes for women and men change?
Logical framework	25. Are gender issues clearly stated in the logical framework?
Management arrangements	26. Is there a budget for gender related analysis and activities?
	27. What type of expertise is required to ensure attention to gender issues?

7. Recommendations:

Gender mainstreaming of the sustainable energy development (SED) program of GTZ is being recommended through this section. Specific recommendations summarized below are based upon the gender audit of SED. It is suggested that progressive steps should be taken by SED to manage a gender sensitive energy program.

1. Based upon GTZ's gender strategy a policy should be developed by SED to incorporate gender and energy issues into future energy programs.
2. Gender focus should extend from the early stage of project conceptualization and planning, and then continue upto project monitoring and evaluation. SED needs to identify the difference between women's and men's ability to participate during problem identification as well as other stages of project cycle.
3. ***SED should build gender awareness among its team members.*** Such awareness can be extended from management and professional staff to partner organizations of SED. Those staff of SED engaged in problem identification should be briefed on gender and energy.
4. SED needs to collect gender disaggregated data for project monitoring. Such data is essential for understanding the impact of energy interventions on people in a gender sensitive manner
5. Increase women's participation at all levels from project planning to execution and monitoring.
6. SED should support women through capacity building in order to further enhance their scope of participation with measurable empowerment.

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7. In strategy development make contact with organisations or NGO's with knowledge and experience of gender mainstreaming, and have them participate in strategy development and agenda setting.
8. Projects that have matured and are being scaled up should particularly investigate their program to seek the opportunity of including women as service providers.
9. SED should show willingness to make space and strengthen women's participation in the organizational setup.
10. In order to be compatible with the social practices of rural household while having effective communication, SED should include a female member in their survey team engaged in project monitoring. This will ensure that women's concerns are adequately reflected in information collected.
11. The POs should be encouraged to include women members from the community join their team of supervisors, or become active members of committees for project implementation.
12. Difference in access to energy and control over resources related to energy should be addressed by SED partners.
13. All relevant documents of SED should be gender inclusive giving adequate account of men and women's relevance. Existing interactions of women should be recorded and acknowledged.
14. Program review, monitoring and evaluation documents of SED should have a section highlighting gender issues.
15. Impact of project on achieving gender equality should be noted during reporting. Allow staff to monitor project disbursements to ensure balanced outcome for both women and men.

16. SED should empower women through capacity building. In order to disseminate knowledge among rural women, it is suggested that a brief training on technology being implemented should be given to the rural women at the time of installation.

Annex 1. Case Studies:

A1. Energy Efficiency Improvement During Par-boiling in Rice Mill

1. GTZ has initiated a demonstration project for improving energy efficiency of the par-boiling system, in particular the boiler, of a privately owned rice mill named "Russel Rice Mill", located 55 km from Dhaka. With a daily turnover of 2000 kg of rice, the mill uses its own rice husk for fueling the boiler. GTZ has designed and installed an efficient boiler replacing the older one with a motivation of reducing rice husk consumption, time requirement for boiling and clean smoke from the stack. The team has found all objectives to be met that result in better economic output for the owner and reduced environmental impact from the project. The mill is running for 30 years, with recent modernization with a sorting machine for the finished product and improved boiler from GTZ.
2. The owner of the rice mill has named the mill after his youngest son, who is a medical doctor in a nearby city. On a fully operational mode there are 40 labors working in the rice mill, with 3 women engaged in cooking and cleaning of the premise. In this mill men are working under contract from the labor service provider without any special attention to the scope of employing local women. According to the owner, the mill is operational for extended hours in the evening, which requires labor to be engaged after dusk and during the night. Social barriers and security conditions do not allow or encourage women to work at the mill, or any location outside their home at night.
3. In the rice mill, paddy is initially sundried on the concrete drying area, where manual labor is used to mix and expose to the sun. Partially dried paddy is then introduced into the automated drying machine prior to milling and packaging. According to the skill

demanding for manual labor for sun-drying the par-boiled rice, men and women are equally capable. In fact, in a typical scenario of rural village, women are engaged in drying par-boiled rice for domestic consumption in the central courtyard of their household. Therefore the knowledge is there, and there is an opportunity to encourage or mandate engaging local women for day-time labor in a similar project. Such provision for women's involvement resulting in her economic empowerment was not investigated or explored in the current project, instead, women who used to work there have been replaced by men now.

A2. Improved Cook Stove for Domestic and Commercial Applications

Agency for Integrated Development (AID) NGO is a partner organization of GTZ that was interviewed on July 15, 2010 for assessment of their program from a gender perspective.

1. SED has undertaken a project for replacement of the traditional cook stoves using biofuel with improved cook stoves designed to reduce fuel consumption, and eliminating smoke in the immediate vicinity of the user. Improving air quality of the kitchen is done through a chimney attached to the specially designed stove that eliminates smoke in a controlled manner and prevents unnecessary energy loss..
2. Under the SED project an effort is made to commercialise the improved stoves through local NGOs, who organise local masons as entrepreneurs. The masons are individually engaged in marketing, construction and sales of the stoves to the interested households. Much of the effort from GTZ is placed in capacity building to the NGO bodies, who are their partner organizations. Training is provided to the local masons on construction of improved stove.
3. Women should receive user-training at the time of installation of improved cook stove. Following such training the individual will gain know-how for minimum maintenance of

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stoves, encourage her peers on using improved cook stoves, and if interested she may decide to contact the NGO for formal training for local distribution in the villages.

4. The team has visited Agency for Integrated Development (AID) NGO, which is a GTZ partner for the improved stove project from Dhamrai in the periphery of Dhaka. The particular NGO has sold 1500 domestic stoves and 5 commercial improved stoves for rural tea-stalls. AID has received training of trainers (TOT), and organised training for 90 participants in three locations within the past 2 years under the GTZ project. A limited number of the trained individuals have taken up construction of improved stoves as a livelihood to partially meet their financial needs. Whereas GTZ has subsidised the cost of training and partial grant is available to AID for promotion of the technology, much time and effort is contributed by the NGO for retaining the mason and consequent sustenance of its improved cook stove program.
5. It is observed that there were no female staff of GTZ engaged in the project execution at the field level hence the NGO did not interact with any women. The trainers appointed by GTZ for the project were all men, and training given for TOT was also received by men only. It was not clear whether gender issues related to the project was introduced in the training.. All the masons engaged by AID are men who have taken construction and sales of improved cook stove as their livelihood. In a typical rural household it is the rural women who traditionally construct the stove to be used in her kitchen. Therefore there is a scope of giving training to encourage rural women in improved stove construction and its maintenance.
6. It is noted that the rural women may have limited mobility in travelling distances to sell improved, which discourages her to become a commercial mason. On the other hand, total benefit of the improved stove goes to the rural women's health and hygiene. Therefore, as a targeted beneficiary to the project, women and small children are getting most benefit from the intervention.

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7. It is found that women and men jointly decide in procuring an improved stove for a household, and often times it is the woman member who makes the initial contact with the commercial supplier, with consent of the male member.

Table A1. List of Individuals Interviewed for the Study

Gender Analysis of SED project of GTZ

Name of the Person	Activity
Mr. Otto Gomm	Team Leader and Project Coordinator, Sustainable Energy for Development (SED), GTZ
Dr. Khurshedul Islam	Senior Adviser Sustainable Energy for Development (SED), GTZ
Dr. Engr. M. Khaleq-uz-zaman	Senior Advisor, Sustainable Energy for Development (SED), GTZ
Mr. Md. Abdul Gofran	Consultant, Grameen Shakti
Mr. Shamsul Haque	Consultant, Grameen Shakti
Mr. Syed Ahmed Khan	Executive Director of Agency for Integrated Development (AID) Bangladesh & GTZ Partner
Mr. Shohidul	Branch Manager, Grameen Shakti
Mrs. Sadia Sultana	Employee, Grameen Shakti
Mr. Noor Hossain	Supervisor of Agency for Integrated Development (AID) Bangladesh
Mrs. Kazi Maksuda	Owner & User of Bondhu Chula
Mrs. Umme Gulshan Ara	Owner & User of Bondhu Chula
Mrs. Moriom Begum	Owner & User of Bondhu Chula
Mrs. Morjina Begum	Owner & User of Bondhu Chula
Mr. Mowlana Elias	Owner & User of Bondhu Chula
Mrs. Bashonti Sarker	Owner & User of Bondhu Chula
Mr. Aminul Islam	Owner of Bio-gas Plant
	Owner of Messer Russel Auto Dryer Rice & Sorter Mills & User of improved Boiler
	Owners of Solar Home Systems

References:

1. Corporate Strategy on Gender Mainstreaming 2006-2010, by GTZ
2. Guiding questions for Gender Analysis' provided by GTZ.
3. Gender & Energy For Sustainable Development: A Toolkit and Resource Guide, UNDP December 2004.
4. A guide on Gender Mainstreaming in the Africa Biogas Program, by ENERGIA International Network on Gender and Sustainable Energy, July 2010.