Gender and Biomass Energy Conservation in Namibia: A Case Study with Special Reference to GTZ/ProBEC Interventions

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List of Acronyms

ARECOP	Asia Regional Cookstoves Programme
BEC	Biomass Energy Conservation
DRFN	Desert Research Foundation of Namibia, the Secretariat to NAMBESC and implementer of NAMBESP.
ENERGIA	International Network on Gender and Sustainable Energy: secretariat in the Netherlands, with members all over the world. Founder and partner to the SAGEN.
GEF	Global Environment Facility
HEP	GTZ Household Energy Programme
MEPC	Minerals and Energy Policy Centre, South Africa
MME	Ministry of Mines and Energy, Namibia
MPA	Methodology for Participatory Assessments, developed for the water sector by World Bank Participatory Learning & Action Initiative, currently being adapted to the rural electrification sector.
NAMBESC	Namibian Biomass Energy Management Steering Committee: A coordinating committee overseeing the development of a National Biomass Energy Strategy in Namibia.
NAMBESP	Namibian Biomass Energy Saving Project: Implemented by DRFN with DRFN and MME support, in northern Namibia.
ProBEC	Programme on Biomass Energy Conservation: A GTZ/EU funded regional project; secretariat in Zimbabwe and six member countries: Lesotho, Malawi. Mozambique, Namibia, South Africa and Zimbabwe.
SAGEN	Southern African Gender and Energy Network: Co-ordinated by the Minerals and Energy Policy Centre (MEPC), with members countries from the southern African region.
REINNAM	Renewable Energy Information Network of Namibia, now part of the DRFN mainly concentrating on information dissemination, research and consultancy in the whole energy sector.
UNAM	University of Namibia
WAD	Women's Action for Development: an NGO focusing on socio-economic and socio-political empowerment of mostly rural women in Namibia.
WSSD	World Summit for Sustainable Development, Johannesburg, September 2002

1 Introduction

This case study was commissioned by GTZ ProBEC, the regional Programme for Biomass Energy Conservation in Southern Africa. ProBEC aims to enhance capacities and commitments of governments and development institutions/organizations to plan and implement integrated biomass energy conservation programmes. The goal is to contribute to the improvement of quality of life for poor rural and urban populations by enabling them to meet their energy needs in a socially and environmentally sustainable manner. ProBEC is implemented in six SADC countries: Lesotho, Malawi, Mozambique, Namibia, South Africa and Zimbabwe.

Areas of intervention of ProBEC are first, the integration of biomass energy saving techniques and technologies on household/small business level; and secondly, the strengthening of the integration of biomass energy conservation in national policies. One of the guiding principles of ProBEC is to work in a gender-oriented manner.

In Namibia, three levels of ProBEC intervention are taking place: at the implementation level, through the Namibian Biomass Energy Saving Project (NAMBESP) in northern Namibia; at the institutional level, through the Namibian Biomass Energy Management Steering Committee (NAMBESC); and at the policy level, through the development since 1999 of a Namibian Biomass Energy Management Strategy.

SAGEN, the Southern African Gender and Energy Network, is a regional network aimed at strengthening the role of women in sustainable energy development through information exchange, training, research, advocacy and action. In August 2001, SAGEN called a regional meeting to develop future activities, in particular to plan input to the World Summit on Sustainable Development (WSSD) in 2002 in Johannesburg. At that meeting, ProBEC and SAGEN further developed the idea of carrying out a case study on gender and biomass energy in one of the ProBEC countries for presentation at the WSSD. SAGEN, through the Minerals and Energy Policy Center (MEPC) in South Africa, contributed the time of a policy analyst to the team, with other costs covered by ProBEC.

As a sister organization to SAGEN, ENERGIA, the International Network on Gender and Energy (with secretariat in the Netherlands), agreed to provide the team leader for the case study, with the international consultant financed by ProBEC and technical backstopping and collection of documents contributed by ENERGIA.

Namibia was identified as an appropriate country for such a case study, given the three levels of intervention in biomass energy conservation in the country. The Namibian partners, the Ministry of Mines and Energy, and the Desert Research

Foundation of Namibia (DRFN), an NGO, each contributed a team member and provided logistical inputs and backstopping in Namibia.

The terms of reference for the case study are attached as Annex 1.

2 Objectives

Meeting women's needs is often taken for granted in household energy and improved stoves programs, which are usually technical interventions, not socio-economic ones. Gender perspectives in biomass energy conservation have seldom been examined closely. The objective of this case study hence is to demonstrate how gender aspects can be successfully integrated at different levels in the biomass energy sector, thus contributing not only to improved efficiency and effectiveness of household energy programs, but to increased gender equity in participation and benefits.

Specific outputs in the ToR include:

- preparation of a case study on gender and biomass energy for presentation at the WSSD in 2002; and

- recommendations to ProBEC on gender integration in its next phase.

In the course of the mission, some of related outputs were achieved:

- development of some possible indicators for the integration of gender in biomass energy conservation, including assessment of the potential for adaptation of the World Bank Methodology for Participatory Assessment (see below) to the biomass energy sector; and

- capacity-building in gender analysis and gender in biomass energy, use of participatory tools, report-writing and presentations, and participatory teamwork, for the Gender & Energy Team.

3 Methodology

The case study was carried out in Namibia between 18 and 30 November, 2001. The ENERGIA and SAGEN team members met with ProBEC staff in Johannesburg for 2 days prior to the mission to review ProBEC activities in the region and to develop indicators. In Namibia, two meetings with the National Biomass Management Steering Committee (NAMBESC) were used to present the gender and energy activity, to self-assess gender-relevance, and to present the team's findings from field visits. Various stakeholders were also interviewed in the capital city of Windhoek. Field visits to activities supported by the Namibian

Biomass Energy Savings Project (NAMBESP) were carried out from 23-27 November in the northern region of Oshakati. Partner projects, stove producers and stove users were visited and interviews and participatory methods used to assess gender integration.

Annex 2 provides a complete list of persons met and Annex 5 gives a detailed account of the various meetings and their results.

Considerable emphasis was placed on capacity-building and teamwork, with all team members participating in presenting the project and results, the development of indicators, designing research exercises, analysing results, and writing reports. A team self-evaluation is included as Annex 9.

Any case study needs to address the question of what represents "success"? In this case study, the Methodology for Participatory Assessments (MPA) was used as a basis for developing indicators for measuring gender integration in biomass energy in Namibia. This methodology was originally developed for use in the water & sanitation sector by the World Bank Participatory Learning & Action Initiative, which tested and proved the methodology in 88 villages in Asia, Africa and Latin America. The MPA integrates gender and poverty with demand and sustainability. It combines participatory tools in self-assessment with statistical analysis at community, institutional and policy levels. This methodology is currently being adapted to the energy sector in a decentralized rural electrification GEF project in Cambodia. An early effort to adapt the MPA for use in biomass energy projects is ongoing by the Asian Regional Cookstoves Program (ARECOP).

Gender integration was assessed at the policy, institutional and implementation levels, corresponding to the three levels of ProBEC interventions in Namibia. An attempt was made to first identify key gender issues in the biomass energy sector, and only then to select appropriate indicators of these from the MPA guidelines. In the Namibia case study, only a few selected indicators were developed and used, given time and logistical constraints. Only gender-sensitivity indicators were selected from the MPA, not poverty or demand-responsiveness indicators (nor, as might be relevant in Namibia, age indicators).

The variables and indicators adapted from the MPA for use in the biomass energy sector and used in the Namibia case study are shown in Table 1. It should be emphasized that this is only a very partial and experimental application of the MPA in this context. Although a good deal of time was devoted to the development of indicators, this was not the principle purpose of the case study and these indicators do not represent a final workable methodology.

At the implementation level, while the team feels that the indicators developed are useful and robust, they are not comprehensive; other indicators could be considered. Furthermore, the specific findings at the implementation level are not

Table 1. Gender-Sensitive Indicators for Biomass Energy Conservation Programs

Variables	Indicators
A. Policy support for gender-sensitive participation	National energy policy with meeting both men's and women's needs as explicit goal
	National sector policy for biomass energy
	National biomass energy policy with meeting both men's and women's needs as explicit goal
B. Institutional support for gender-sensitive participation	Gender balance and expertise as reflected in the type of agencies involved and individual expertise in institutions and agencies concerned with biomass energy conservation (BEC)
	Sex disaggregated planning & monitoring system for BEC activities in operation
	Indicative strategy on gender as reflected in service objectives, implementation strategies and project performance criteria in BEC activities
C. Gender integration at implementation level: Stove production	No. of men & women trained and no. of men & women drop-outs
	Training received and training practiced by men & women (skilled/unskilled, paid/unpaid)
	Benefits from participation in the stove project as perceived by men & women
D. Gender integration at implementation level: Users	Input to technology design by men & women
	Stove purchase by men & women
	Benefits from stove use as perceived by men & women
	Stove use in small business by men & women

felt to be generalizable, due to the small number of households and focus groups possible in this study. Nonetheless the results were felt to be sufficiently indicative and useful to present here.

Annex 7 describes in detail the tools used to measure these indicators in the field. Documents consulted by the research team are listed in Annex 10.

The main body of the report examines the results of using these indicators to assess variables in gender integration at three levels: policy, institutional, and

implementation. Following a brief description of gender issues in biomass energy in Namibia in section 4, three variables are assessed: first, policy support for gender-sensitive participation; second, institutional support for gender-sensitive participation; and third, gender-sensitive participation and division of benefits at the implementation level in stove production and use. In each section, for each of the above three variables, indicators are assessed, findings described, and recommendations given.

Policy support for gender-sensitive participation is first examined, in section 5, looking at gender sensitivity of national energy policy, the existence of a national biomass energy policy, and gender sensitivity of national biomass energy strategy in Namibia.

Secondly, institutional support for gender-sensitive participation is assessed in the National Biomass Energy Management Steering Committee (NAMBESC) and its member agencies, in section 6. Indicators concern gender balance and expertise as reflected in the type of agencies involved and individual expertise in agencies concerned with biomass energy conservation; the operation of a sex-disaggregated planning and monitoring system for biomass energy conservation; and an indicative strategy on gender as reflected in BEC activities.

Thirdly, gender-sensitive participation and division of benefits at the implementation level is assessed in section 7, based on fieldwork in the Namibian Biomass Energy Saving Project (NAMBESP) in northern Namibia, both in stove production and for household and small business users. In stove production, indicators include the number of men and women trained and the number of drop-outs; the types of training received and practiced by men and women (skilled/unskilled; paid/unpaid); and the benefits from participation in stove production as perceived by men and by women.

From the user perspective, indicators include the inputs to technology design and improvements made; stove purchase; benefits from stove use; and stove use in small businesses. These are assessed individually from the perspectives of men and women.

Finally, lessons and recommendations are given in three areas in section 8: to the Namibian Biomass Energy Management Steering Committee, on gender integration in biomass energy conservation in Namibia; on application of the World Bank Methodology on Participatory Assessments to the biomass energy conservation sector; and to ProBEC on gender integration in biomass energy conservation at the regional level.

4 Gender in biomass energy in Namibia

Namibia is the most arid sub-Saharan country in Africa (34% arid, 58% semi-arid, 8% sub-humid), struggling against not only deforestation but desertification. Its population of 1.7 million inhabitants has one of the lowest population densities in the world, with 1.7 people per km. But in the densely populated north, where population was forcibly concentrated during the apartheid period, population density can be 60 per km or higher, and overall population is growing at a high 3%. Namibia has a relatively high per capita income of $1,890 based on rich mineral, livestock and fisheries resources, but income distribution is one of the most unequal in the world, inherited from the colonial period (World Bank, 2001). Since independence in 1990, provision of basic infrastructure such as water supply, health clinics and schools has been a major focus of the government.

Biomass plays an important role in Namibia, particularly in the rural household and small business sector and for poor urban households. More than 66% of the about 245,000 households in Namibia are rural, of which 60% live in poverty and experience food and livelihood security (MME, 1997 in Schneider, 1999). Rural poverty is exacerbated by the widespread vulnerability to drought throughout the country. Most of the population relies heavily on natural resources: wood for construction and fuel, subsistence farming and wild foods for food, and livestock for income and food. Remittances and pensions are important sources - often the only sources - of cash income.

Women's dependence on the biomass fuel economy must be seen against the background of the extremely high level of female-headed households (in some areas of the North up to 57% due to migrant labour) and the low status of women historically in the country. Female-headed households, according to statistical bureau studies cited in Wamukonya, have less access to electricity for lighting, own fewer electrical applicances such as radio, TVs and refrigerators, and are less likely to own motor vehicles. In rural areas, this disadvantage is reflected in lower access to land, labour and paid employment.

One of the effects of the high level of female-headed households is increasing workload and responsibility for rural women. Lack of time is a serious problem for rural women.
Human labour is the main form of energy used in the communal agricultural sector in Namibia, and women due to their preponderance in rural areas make up a large portion of farm labour. A government study in 1995 (reported in Wamukonya, 1999) found that rural women were performing many agricultural tasks previously characterized as male activities, adding to their time constraint.

The contribution of biomass fuels to total energy consumption in Namibia is unknown. An estimated 90% of rural households in Namibia use biomass energy to

meet their daily energy needs (Wamukonya, 1999). The largest use of biomass energy is in cooking, which is mainly done by women, though men occasionally cook while away in the fields. Wood is also used widely in construction of houses, compounds and fences.

Figure 1 illustrates the importance of wood for cooking in both rural and urban areas. Electricity and LPG gas are mainly used for cooking in urban areas, but even so more than 30% of urban households rely on woodfuels for cooking.

Figure 1. Fuels used for cooking in rural and urban areas, Namibia, 1996

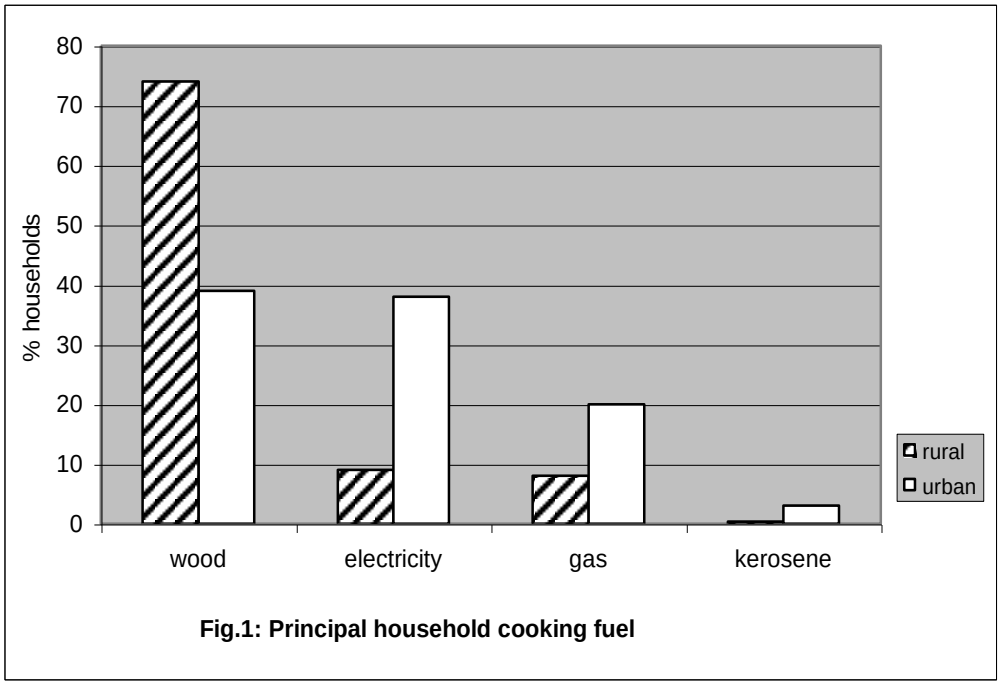

Fig.1: Principal household cooking fuel

Source: Hamutwe & Wamukonya, 1998 in Wamukonya, 1999.

Besides cooking, biomass energy is used for fires for heating, lighting, and protection from wild animals. Even in urban areas, biomass is used by some households for lighting; candles and kerosene are also common in both urban and rural areas. The majority of urban households however have access to electricity for lighting.

Fuelwood is increasingly scarce in all parts of the country, and particularly so in the more densely populated north. While most fuelwood collection is by women and children, men increasingly collect fuelwood from distant areas using donkey carts. Surveys report an average distance of nearly 15 km and an average of nine fuel collection trips per month per household (Wamukonya, 1997). Fuelwood is also increasingly becoming commercialized. Time and, increasingly, money spent on fuelwood is hence a burden for rural women and men.

There are few alternatives to biomass energy for rural households in Namibia. Only 16% of rural households have access to electricity, and paraffin (kerosene) and LPG gas are beyond the financial reach of most households outside urban areas, even for lighting.

Due to the severe scarcity of fuelwood, a variety of biomass fuels are commonly used. A baseline survey in the northern region listed the following biomass fuels: fuelwood, bitter bush, marula husks, makalani husks, palm seeds, animal dung, and crop residues. Agricultural residues and biomass wastes are invariably smokier than wood, creating indoor air pollution and eye and respiratory illnesses. Although there have been no measures of exposures and health effects in Namibia, in other African countries smoke from cooking has been shown to cause serious illnesses. Women are the main victims of this exposure to smoke due to their predominant role in cooking, although this may be less of a problem in Namibia due to the fact that cooking is normally done outside or in open shelters.

Women operate a variety of fuel-intensive small-scale industries in the informal food and beverage processing sector in Namibia. These include processing of marula nut oil, fish smoking, bakeries, omalodu beer brewing, and pottery (where taboos exist for men). Men participate in sale of fuelwood and sometimes roast meat for sale. Fuelwood is the primary source of fuel for these small businesses, so the scarcity and high cost of fuelwood is a constraint and burden on their profitability.

5 The policy level: The National Biomass Energy Management Strategy

5.1 Gender in national energy policy in Namibia

Energy policy in Namibia is guided by the Energy White Paper, approved by the Cabinet in April 1998 following a public consultation process. Women's needs are mentioned specifically in one of the 83 paragraphs, which states that,

The government undertakes to ensure that energy projects impact positively on rural women, the principle users of energy and energy appliances, by ensuring that they participate in the design of energy projects and programs, as well as by educating the public about the potential impact of these energy interventions.

As Wamukonya (1999) points out in a paper commissioned by UNDP and the Ministry of Mines and Energy in Namibia, a number of other policy statements mentioned in the paper have direct relevance for women, and could contribute significantly to improvement in their energy status, if formulated and implemented in a gender-sensitive manner. A number of these relate to biomass energy. These are shown in the table below, taken from her paper.

Table 2. Select Key Policy Statements with Potential Direct Benefits for Women, Energy White Paper, Namibia (Source: Wamukonya, 1999)

Policy Statement	Comment
Government will investigate the status and use of biomass in the different regions of Namibia in order to determine which rural people are most affected by woodland depletion, as well as the nature of the problems experienced by rural people….	Most rural people affected by woodland depletion are women.
Government will promote fuel-efficient cooking technologies in rural areas.	White paper notes that this policy is prompted by high cost of woodfuel and long distance women walk to collect wood.
Government will establish an appropriate inter-ministerial mechanism to ensure that rural peoples woodfuel needs are integrated into the Directorate of Forestry policies and practice, especially with regard to the management and control of forests, as well as to woodlot, and commercial, communal and farm forest strategies.	A recent study on gender in Forestry notes that women are neglected in development of these strategies. (Makela, 1999)
Government will take measures to ensure that commercial fuels such as paraffin LPG and diesel, as well as their associated appliances are available and affordable for rural people for use in the home, agriculture, small business, telecommunications and community business facilities.	Problems encountered in accessing these fuels differ by gender.
Government is committed to continuing the rural electrification programme using transparent planning and evaluation criteria for new projects.	Many rural households are effectively headed by women who are generally poorer than male-headed households.
Government will develop and implement renewable energy awareness programmes.	In the household sector, women will be the main users of these technologies.
As a basis for potential corrective policy government will assess the extent to which the health and safety of rural and urban households dwellers is being affected by the use of wood, candles and paraffin within their homes.	Women and children are the most affected.

This 1999 paper interviewed 35 stakeholders in the gender and energy sector and found that gender issues in energy policy, planning and implementation had been only minimally considered. This was attributed by stakeholders to two reasons: (1) no framework was in place to ensure gender consideration; though this is supposed to be checked on project proposals, in practice this is a routine formality or not done; (2) the environment in the planning and implementing agencies is not gender-sensitive.

Energy projects to benefit women proposed in the same paper included: Introduction of wood saving stoves in urban markets where food is being processed using wood fires; identification & dissemination of appropriate solar stoves for households in the southern region; and design & implementation of strategies to enable switching from fuelwood to gas in the urban sector, particularly in the low income sector. Recommendations proposed in the paper were:

i. Sensitizing the Directorate of Energy and other energy players on gender issues with respect to energy, through gender training.
ii. Actively soliciting external opinion on energy issues from groups and individuals in the gender field. Inviting relevant stakeholders eg the Dept. of Women's Affairs to discuss and strategize engendering of energy policies.
iii. Seeking opinions from women at the grassroots levels through workshops. Involving more women in project implementation.
iv. Setting up a mechanism to evaluate energy projects at all stages, for gender sensitivity.
v. Encouraging women to take up science and engineering degrees to enable them to take up jobs relating to energy planning and implementation.
vi. Empowering society by informing and educating the public on linkages between energy and gender.
vii. Active coordination and collaboration among relevant entities including the Department of Women's Affairs, the MME and the Directorate of Forestry, especially on matters relating to policy formulation and implementation.
viii. Collaboration between the National Planning Commission and the Ministry of Local Government and Housing to enhance access to energy.

Roles and activities for a regional network were identified as:

- A source of ideas on feasible income generation projects, based on what works elsewhere, since opportunities seem limited here.
- Supporting and strengthening the local network through capacity building and providing information for dissemination.

In 1998, a National Gender Plan of Action (1998-2001) was introduced. This Plan includes a section on Gender and the Management of the Environment, with a national goal of national development of a sustainable ecological system through equal contribution by men and women. Though there is no mention of energy in any of the activities or outputs, energy could be included under environment. In 2001, the Department of Women's affairs was upgraded to Ministry level. All ministries are

obligated to appoint a gender focal point, and MME has a focal point on Gender, Biomass and Energy. These focal points meet monthly under the auspices of the Ministry of Women's Affairs in order to exchange information and coordinate activities. In many cases, though, gender focal points are reportedly quite junior professionals without any gender training or real authority in their respective ministry.

5.2 Gender in biomass energy policy in Namibia

Attention to biomass energy policy is in itself gender-sensitive, since it encourages interventions in an energy sector that is of considerable importance in meeting women's primary energy need of cooking. Namibia is the first country in the southern African region to undertake specific development of a national biomass energy strategy. This strategy is being developed using the country's own financial and human resources, illustrating the high level of priority given by the Government.

Nonetheless, funding for biomass energy under the development project budget of the Ministry of Mines and Energy for 2000 is only 2.8% of the total. The majority of the budget (85%) is allocated to rural electrification, with the remainder for renewable energy, solar home systems, energy efficiency, and research (Mr Hamutwe, MME, personal communication).

Concern with biomass energy conservation in Namibia resulted in development of the Tsotso stove at the Rural Development Centre in Ongwediva in the north even prior to independence. However, there was little active dissemination until 1998. In the meantime, two background studies were carried out: (1) energy consumption patterns in peri-urban and rural areas of Namibia, in 1996/1997, and (2) rural energy needs and energy supply options in two selected pilot centres, in 1998. In 1998, a consultative workshop was hosted by the Ministry of Mines and Energy as part of the orientation phase of ProBEC, which resulted not only in a decision by the Government to participate in ProBEC, but also in the launching of the national initiative to develop a biomass energy management strategy.

Development of a National Biomass Energy Management Strategy was included in the terms of reference for the Namibian Biomass Energy Steering Committee (see Annex 3), with specific activities funded by the Ministry of Mines and Energy (MME) and the Ministry of Agriculture, Water and Rural Development. These activities include:

(1) A study on the biomass situation in Namibia, training needs and biomass technology assessment;
(2) Pilot project implementation and evaluation;
(3) Background issues paper, including national workshops and consultation
(4) Development of a national strategy document, including national workshops and consultations.

There is no mention of gender or indeed of social issues in the terms of reference, and the contractor for tasks (1), (2) and (3) above readily admits that the study and paper are limited to technical and economic issues, with the expectation being that the Government will identify other organizations such as DRFN to bring socio-economic expertise and issues into the national strategy. There is no provision however in the terms of reference for provision of this socio-economic expertise in preparation of the draft paper, only at the review and consultation stage.

Nevertheless, the study on the biomass situation and technology assessment in Namibia (Stewart Scott, 2000) clearly pays attention to women's needs, by identifying improved fuelwood stoves as the most important biomass technology in which to pursue further development. The compilation of stakeholders in biomass energy in the study includes not only technical groups but women's and development organizations as well. Firewood, agricultural wastes and dung for traditional cooking and heating are identified as the major components of the biomass sector, together with charcoal manufacturing (which is primarily a commercial export industry). The study is largely technology-focussed however, with a number of biomass energy technologies assessed for possible use in Namibia, including the three-stone fire, fuel-efficient stoves, briquettes, fuel ethanol, biogas digesters, municipal waste incineration, co-firing wood and coal, large- and small-scale gasification.

Two technologies were identified as the most promising from the above, and two pilot projects implemented and evaluated:

1. Establishment of small-scale stove manufacturing centers to encourage the further development, dissemination and use of fuel-efficient stoves.
2. Small-scale gasification for electricity and heat generation, with a demonstration gasifier being moved to different sites around the country.

The first pilot project above is now supported by NAMBESP (see 7. below), while Stewart Scott is implementing the second.

5.3 Indicators, findings and recommendations on policy support for gender-sensitive participation

Indicators and findings

Three indicators of gender integration at the policy level were developed and tested:

a. the degree to which national energy sector strategy has meeting both men's and women's needs as an explicit goal;

b. the degree to which national energy sector strategy gives attention to biomass energy; and

c. the degree to which national biomass energy strategy has meeting both men's and women's needs as an explicit goal.

Methods used to measure these indicators were: Review of planning documents and personal interviews.

The three indicators and their results are given in Table 3 below.

Table 3. Variable A: Gender Integration at the Policy Level: National Energy Policy and Biomass Energy Policy

Indicator	Findings
A.1. Gender in national energy strategy?	- Energy White Paper mentions women's energy needs. - An Energy Researcher for Biomass, Gender, and Energy has been appointed in the Ministry of Mines & Energy.
A.2. Attention to biomass energy?	- Attention to biomass energy & improved stoves is gender-sensitive because it addresses women's as well as men's cooking energy needs. - Namibia is the first country in southern Africa to develop a national biomass energy strategy. - Up to 95% of rural households depend on biomass energy but less than 3% of MME budget goes for biomass energy conservation.
A.3. Gender in National Biomass Energy Management Strategy?	- ToR for Strategy does not mention gender or even socio-economic issues. - Mission statement: "Biomass energy is used in sustainable way" does not include meeting people needs or affordability. - Stewart Scott expertise is limited to technology & related economic issues. - Socio-economic & dissemination expertise are assumed to be provided from elsewhere, but there is no provision in the ToR for this.

Recommendations

Based on the above findings, two recommendations were made by the team:

i. Given its absence in the current terms of reference, a specific activity and contract for socio-economic and gender input to the National Biomass Energy Strategy issues paper by Stewart Scott should be planned and implemented.

ii. Taking into account the need for greater understanding of gender concepts in national energy policy, gender and energy training should be provided to staff of the Ministry of Mines and Energy as part of orientation and/or in-service training.

6 The institutional level: NAMBESC and its members

6.1 The Namibian Biomass Energy Management Steering Committee (NAMBESC)

At the institutional level, the Namibian Biomass Energy Management Steering Committee was created in 1999, following the first ProBEC orientation workshop and as part of Namibia's participation in the ProBEC project, with the objective of coordinating the development of biomass energy conservation in the country. The terms of reference for NAMBESC are included as Annex 3. NAMBESC – which meets approximately monthly – is chaired and coordinated by the Director of the Directorate of Energy, Ministry of Mines and Energy. Its Secretariat and implementation capacity is provided by the Desert Research Foundation of Namibia (DRFNP), an NGO, and by Stewart Scott, an engineering consultancy which, though not an official member, attends all meetings due to its key role as the primary contractor for developing the national biomass strategy.

The membership of NAMBESC has fluctuated according to the personal interest of the participants, but was originally established as the following:

Directorate of Energy, Ministry of Mines and Energy (MME), Chairperson
Ministry of Higher Education, Vocational Training, Science & Technology - Directorate of Research, Science & Technology
Ministry of Environment & Tourism - Directorate of Forestry
Ministry of Agriculture, Water & Rural Development - Directorate of Planning
Association for Local Authorities in Namibia (ALAN)
UNDP/UNESCO
Namibia NGO Forum
Desert Research Foundation of Namibia (DRFN), Secretariat

During the present mission, a mini-workshop on gender approaches in biomass energy conservation was held and several participatory exercises were carried out together with NAMBESC. Annex 5 reports on the mini-workshop.

Three key stakeholders in NAMBESC were interviewed individually:

(1)The Energy Directorate of the ***Ministry of Mines and Energy*** is the main government body regulating the energy sector, formulating and implementing energy policy. The Directorate is divided into three divisions (petroleum and gas (upstream), petroleum and gas (downstream), and electricity, which is further divided into rural electrification and primary resources development. This last unit is responsible for renewable energy, including biomass energy. At present there are 30 professional staff positions in the Energy Directorate, but only 15 of them are filled, due to loss of staff and difficulties in competing for both men and women with the better-paying private sector. The experienced Biomass, Gender and Energy professional staff member, a woman, was recently lost for this reason, and has been replaced by a junior staff member, a woman new to the energy sector. A second woman may soon be recruited at a senior level in the Electricity Division.

(2) The consulting engineering firm of ***Stewart Scott Namibia*** is the contractor for the National Biomass Energy Management Strategy. As a result, Steward Scott has initiated a number of stove development, testing, training and marketing activities. The Director of Stewart Scott, Ian Galloway, also operates a charcoal production and exporting firm, which has inspired his interest in biomass. Of 10 professional positions in the firm, none are filled by women.

Both of the above organizations consider their contribution to NAMBESC to be mainly in the technical and economic area, with an emphasis on stove technology development. Socio-economic aspects including gender, as well as dissemination and commercialization of technologies at the household and small business level, are considered to be the terrain of DFRN.

(3) The ***Desert Research Foundation of Namibia***, which acts as the Secretariat for NAMBESC, is a non-governmental organization whose goal is [Walde insert]…… Besides acting as the NAMBESC Secretariat, DFRN has carried out a baseline survey in the north and is implementing the Namibian Biomass Energy Savings Project (NAMBESP, see 7. below), both with ProBEC support. About half of professional and a higher proportion of management positions are filled by women. All staff receive training in social analysis including gender analysis. Nonetheless DRFN does not consider its expertise sufficient in gender aspects to be able to guide NAMBESC in this area.

In addition to these three key stakeholders, research, non-governmental and governmental organizations concerned with gender and women were visited and interviewed in order to review their activities and interest in biomass energy conservation. Although there have been some previous contacts and discussions with

these groups by DRFN, they have not resulted in any concrete collaborations with NAMBESC to date. These organizations included:

(1)The ***Ministry of Women's Affairs*** supports the gender focal points in Ministries and pointed out that it has resources available to respond to their requests for funding to support gender-related research, training, and other activities, including in the energy sector.

(2) The ***Gender Training and Research Program*** in the Social Sciences Division of the Multi-Disciplinary Research Centre of the University of Namibia (UNAM) develops gender courses and programs in the university and has provided gender training to various government ministries and programs. Following the ENERGIA regional Africa meeting in Nairobi in March 2000, a proposal on gender and energy training was developed jointly by DRFN, UNAM and MME, with funding to be provided by ENERGIA; but then the key person in MME departed and the proposal languished. UNAM expressed interest in setting up working relationships with sector experts in Namibia and further developing gender and energy training activities, through cooperation with MME, SAGEN and ENERGIA.

(3) ***Women's Action for Development (WAD)*** is a non-political, "male-friendly" self-help organization which aims at uplifting the socio-economic and socio-political situation of primarily rural Namibian women through group activities. The organization was established in 1994 and is active in 6 regions of the country. WAD receives its core funding from the Konrad-Adenauer-Stiftung, a German NGO, together with EU and other local donors. It has a reputation as an effective women's organization in the country and a good reputation with donors as a reliable partner. WAD attributes its success to: its success in teaching financial management; the fact that its 4 coordinators and 11 fieldworkers operate regional centers and train project members on a daily basis; the fact that staff members are equipped with 4X4 vehicles to reach the most remote villages in the country; the continuous upgrading of skills of staff members; guiding directives continuously given by management; a strategy of working solely through groups; strong affiliations with churches; and effective use of the media. A number of its many very market-oriented income-generating activities relate to biomass energy conservation, and WAD is interested in linking up in particular with stove production training and dissemination activities, and in making use of its current paper-brick fuel making activity with improved stoves.

6.2 Indicators, findings and recommendations on institutional support for gender-sensitive participation

Indicators and findings

Three indicators of institutional support for gender-sensitive participation were developed and tested:

- Gender balance and expertise as reflected in the type of agencies involved and their gender expertise;

- Sex-disaggregated planning and monitoring systems in operation; and

- Definition of strategy on gender as reflected in service objectives, implementation strategies and project performance criteria.

Methods used to measure these indicators included:

- Review of planning and monitoring documents;
- sorting of cards and selection of card describing the current situation by SC members; and
- personal interviews.

Self-scoring matrices for indicators for gender orientation in BEC at the institutional level used in Namibia are given in Annex 4. The three indicators and their results are given in Table 4 below.

Table 4. Variable B: Gender Integration at the Institutional Level: the National Biomass Energy Management Steering Committee (NAMBESC)

Indicator	Findings
B.1. Gender balance & expertise?	- NAMBESC is approximately gender-balanced in individual membership - There are no gender experts or women's organizations involved in NAMBESC - No members of NAMBESC except DRFN have received any gender training - technical members of NAMBESC generally do appreciate a gender-sensitive approach but do not have a clear understanding of gender concepts and cannot cite examples of its application in their work - Other agencies look to DRFN for socio-economic and gender expertise, but DRFN does not consider itself as gender expert
B.2. Disaggregation of data by gender?	Planning & monitoring of NAMBESC activities does not specifically collect information on participation of and effects on men and women, nor use this information to adjust strategy.
B.3. How is gender defined?	- NAMBESC defines women's roles partly from a welfare perspective: women are beneficiaries of improved stoves. - It also encourages women in new roles in decision-making, management, production & marketing in stove producer groups.

As the results in Table 4 show, although gender balance and interest exists in NAMBESC, expertise is weak and there are no mechanisms to ensure systematic gender orientation. Technical members of NAMBESC generally do appreciate a gender -sensitive approach, but do not have a clear understanding of gender concepts and how to apply them in their own work. Other agencies look to DRFN for gender expertise, but DRFN, in spite of its gender-sensitivity as an agency, does not feel sufficiently competent to provide this. Gender and women's

organizations are noticeably absent as members of NAMBESC, despite the obvious relevance of BEC to their interests and activities.

NAMBESC does not specifically collect information on participation of and effects on men and women, so this information cannot be used to adjust strategy. The definition of gender by NAMBESC is partly from a welfare perspective - women as beneficiaries of stoves - but women are also encouraged in new roles in decision-making, management, production and marketing as stove producers.

Recommendations

Based on the above findings, the following recommendations for the institutional level were made by the team:

i. The considerable resources and interest of social science research and women's organizations in Namibia should be enlisted concretely in joint activities with NAMBESC. These include for example the Multi-Disciplinary Research Centre, Social Sciences Division and its Gender Training and Research Program at the University of Namibia (UNAM); Women's Action for Development (WAD), an NGO; and the Ministry of Women's Affairs.

ii. In order to improve understanding of gender concepts in the SC, training in gender in biomass energy conservation should be provided to NAMBESC, through a mini-workshop at a regular meeting.

iii. To ensure that gender issues are systematically addressed in NAMBESC work, terms of reference for all NAMBESC studies should require disaggregation of participation of and effects on men and women as well as their implications for strategy.

7 The implementation level: The Namibian Biomass Energy Savings Project (NAMBESP)

7.1 The NAMBESP Project

The Namibian Biomass Energy Savings Project (NAMBESP) is implemented by the Ongwediva office of the Desert Research Foundation of Namibia (DRFN), the Secretariat of NAMBESC. In March 2001 the NAMBESP project took over support to biomass energy conservation activities in northern Namibia, with ProBEC and MME coordination and support, from two other projects: (1) the Regional Awareness Project (RAP) under the DRFN, started in 1998 to raise environmental awareness and

to educate communities on alternative sources of fuel energy; and (2) the pilot training of stove makers and establishment of small-scale workshops in four sites, which was carried out as part of the development of the national biomass energy issues paper by the MME contractor, Stewart Scott. In the course of the first year following training of stove producers to construct a simple shielded metal, lightweight, insulated wood-burning stove, more than 350 stoves have been produced by five stove producer groups on a semi-commercial basis (Mika, 2001a).

NAMBESP aims at ensuring that households, both rural and urban, in the four northern regions of Namibia are increasingly using biomass energy saving devices to meet their daily requirements. The project works in collaboration with various stakeholders in northern Namibia, who support various activities. Activities include preparing awareness materials and conducting awareness campaigns, testing stoves, training stove producers in technical and business skills, supporting existing production sites, conducting market research, and identifying current and potential stove producers and distributors.

NAMBESP has not explicitly kept records of participation by men and women, however some data could be reconstructed from office records and reports, and this is used in the analysis below. For example, in the baseline survey in northern Namibia, 64% of 160 households interviewed were female-headed and 36% were male-headed, although no analysis of other data by gender of respondent is attempted. This figure for female-headed households is even higher than the 53% female-headed households reported nationally, which includes households where men are absent for employment as well as widows and single mothers.

7.2 Indicators and findings at the implementation level: Stove production

A key intervention mechanism in NAMBESP has been support to unemployed youth from the region, through training and establishment of centres for the production and marketing of improved stoves. Stove producers in two of the five metal stove production centers (Okahao and Onkani) and one solar stove production workshop (Valombola Vocational Training Center) were interviewed in focus groups, using self-assessment tools, for a total of 9 stove producers, 7 of whom were women. Due to the small sample, the findings below should not be considered entirely reliable, but rather, possibly indicative.

Three indicators were used to measure gender integration at the implementation level in stove production:

- the number of men and women trained since inception in April 2001, and the number of men and women dropping out of the project since that date;

- differences in the types of training received by men and women, and differences in the tasks and responsibilities practiced (for example skilled vs low-skill work; paid vs unpaid); and

- differences in the perceptions of benefits received from the project, by men and women stove producers.

Methods used to measure these indicators included:

- examination of project records;
- listing types of training received on cards;
- listing production process steps they like to do best on cards, men and women having different color cards;
- writing benefits of their participation in the stove project on cards, with different colors for men and women, and sorting into categories.
- Focus group discussions.

Table 5. Variable C: Gender Integration at the Implementation Level: Improved Biomass and Solar Stove Production

Indicator	Findings
C.1. No. of men & women trained and no. of men & women drop-outs?	- 37 women and 30 men originally trained, of which: 17 women and 18 men drop-outs. - Aug. 2001 training: 13 women and 5 men trained, of which 6 (5 W, 1M) were from the original group above.
C.2. Different training received or practiced by men & women?	- Both men and women received training in and practice equally: a. stove production process (design & cutting, assembly, vermiculating, putting on handles and flat bar, painting and packaging); b. business management; c. market research/surveys; d. marketing/dissemination; e. quality control; f. kitchen management; g. HIV/AIDS issues; and h. avoiding desertification. - All managers are women.
C.3. Differences in benefits perceived by men & women stove producers?	- Men focus somewhat more than women on income/job benefits - Women emphasize business experience &

	skills as major benefits. - Some men see stove production & demonstration as women's work?

The results in Table 5 above show clearly that while both men and women participate, women predominate in training and in operations of the stove production centers. The involvement of youths of both sexes is a noticeable feature, with both women and men receiving the same training and carrying out the same tasks of stove construction, business management, demonstration and marketing. In fact, women predominate as both metal and solar stove producers.

There has been a dropout rate of 43% in the stove producers originally trained, due to the low level of income generated due to low sales of the stoves, with the remoteness of the stove production locations and transport clearly presenting difficulties in marketing; although lack of business management and technical skills has also been identified. Per month 11 stoves per producer would need to be sold in order for the centers to be self-sustaining and this has not been achieved, though the potential is believed to be there if marketing can be improved (Mika, 2001a).

The different perceptions of benefits by men and women stove producers suggest some reasons for the different rate of drop-outs by men and women. Men may become more interested in remaining in the project if income from stove production increases; while women may have been induced to stay in order to gain skills and experience, though they also value having an income and a job rather than "just sitting at home".

7.3 Indicators and findings at the implementation level: Stove design, purchase, benefits and use

Only a few stove users were contacted, due to lack of time and the difficulty in gathering households together or even visiting households, since not only are farms typically widely dispersed, but stove owners are not necessarily living near one another. Stove users were contacted through the stove producer groups. In Okahao, a men's focus group and a women's focus group were organized, consisting of both users and non-users, to identify gender roles and changes in these. A mixed (4 women and 2 men) focus group of stove owners then carried out several exercises. In Onkani, two user households were visited. The findings therefore should not be taken as representative but rather as possibly indicative.

Four indicators were used to assess gender integration at the implementation level in stove design, purchase and use are:

- inputs to technology design, by men and by women, based on suggestions and special orders that have been implemented by the stove producers;

- stove purchase, decision-making and provision of funds by men and women in the household;

- the division of benefits perceived by men and women stove users; and

- the use of improved stoves in small businesses operated by men and by women.

Methods used to measure these indicators included:

- project reports;
- card sorting exercise with stove producers on customer suggestions;
- focus groups of men and women stove users;
- a matrix on stove purchases with different color stickers for men & women in user focus group;
- card sorting on stove benefits with different colors for men and women;
- gender analysis with matrix and macaroni by men's and women's focus groups, and comparison and discussion of results by the two groups; and
- household visits.

The indicators and findings of these exercises are given in Table 6 below.

Table 6. Variable D: Gender Integration at the Implementation Level: Stove Design, Purchase and Use

Indicator	Findings
D.1. Input to technology design by men & women?	See Table 7: - Both men & women suggested improvements to stove design, that were adopted by producers. - Women made more inputs.
D.2. Stove purchase by men & women?	- Both men & women purchased stoves, but women purchased stoves nearly twice as frequently as men. - In some households, men made the decision to purchase stoves and contributed money to the purchase, and in others men and women together; in most cases though, women decided and paid alone.
D.3. Benefits from stove as perceived by men & women?	See Table 8: Both men & women appreciated stove benefits, but many of the benefits perceived were different for men & women, or different aspects of the same benefit eg portability.
D.4. Energy use in small business by men & women?	See Table 9: - Biomass energy is used extensively in small business, more by women than by men. - Purchases have been made of larger Tso-tso stoves for beer brewing, and requests for solar cookers for baking have been received.

More details on input to technology design by men and women (indicator D1) are given below in Table 7. It can be seen that both men and women make suggestions for improvements in the stove or special orders for the stove that are then implemented by the stove producers. But women make far more suggestions than do men. While men were interested in having a grill on top of the stove for roasting meat, women's interests were in making the stove more portable and more stable - for

stirring the thick staple millet porridge oshifima - and in larger stove sizes for brewing beer, and important income-producing activity.

Table 7. Improvements to Stoves/Special Orders Suggested by Men and Women Customers and Implemented by Stove Producers/Designers

Men Customers	Women Customers
Grill on top (roaster) for meat	Handles for better portability
	Wire reinforced handles for better stability for stirring oshifima millet porridge
	Two-pot stove as normal meal is porridge plus vegetable or meat
	Larger stove sizes (now four sizes) for beer brewing
	Mbwangu model stove production discontinued by most stove producers due to poor durability and stability

In Table 8 below, more details on indicator D.3 are given, showing how the benefits of the metal stove are perceived somewhat differently by men and by women. Men value the speed of cooking and may even be more willing to cook themselves as a result. They also notice the smoke reduction more than women, who perhaps are more used to smoke, and they believe the stove saves them time collecting wood from the forest. Understandably, since they are responsible for house construction, they appreciate the reduced chance of fire. Women on the other hand like the convenience and ease of use of the stove - fuel does not have to be closely supervised to prevent it from going out, and during the rainy season, when flooding of the homestead is common and cooking with the open fire is particularly difficult, the stove can be set up on bricks for cooking. Both men and women believe the stove saves money. And a major advantage of the stove for both men and women is its easy portability, whether to take to the cattle post (men), or to move inside out of the rain, wind or sun (women).

Table 8. Benefits Perceived by Men and Women Tsotso Stove Owners, Okahao Focus Groups

Men	Women
portability to use at cattle post, in field	can set on bricks and cook in rainy season
fast cooking - use to prepare own coffee in morning	portability (to field for hoeing, inside when windy or sunny)
less smoke (only men mentioned this - maybe they notice smoke reduction more, because women are used to it?)	can leave fire unsupervised &doesn't go out
less chance of wind blowing fire and house burning down.	saves time cooking
saves men time collecting wood from the forest	saves fuelwood (where wood is used for cooking)
saves money	saves money
Source: Okahao Men's Focus Group	Okahao Women's Focus Group

Adding to the understanding of these benefits, gender analysis with focus groups highlighted a number of changes in workload and social relations of men and women ongoing in rural Namibia. Both men's and women's groups initially divided men's and women's work along traditional lines - for example, women do cooking, cleaning, pounding, and water fetching, while men do livestock grazing, house construction and fence repair. After some discussion however, both groups realized that men were increasingly doing some work that is traditionally women's - for example cooking while away in the fields, fuel collection, and water fetching - and women are increasingly participating in men's work as well. There were a number of interesting differences in interpretation of the divisions of labour and responsibilities by the respective groups - for example, women believed that they did all of the childcare, while men believed that they themselves took care of children half of the time!

With increasing fuel scarcity and commercialization, there has been a significant impact on fuelwood acquisition roles: in the past, women collected wood free of charge in the fields, but now fuelwood often has to be bought - or collected at long distances - and now it is the men who go and buy a stockpile of wood with a car! Wood is considered essential for the olapale, the men's fire at the entrance to the compound, which is often kept burning all night. Women still collect dung from near the house, and in fuel-scarce areas this may be the only fuel used for cooking.

With respect to the improved stoves, there may be a dynamic underway whereby men are more interested and find it more acceptable to cook with this new "modern" technology, perhaps also because it ends up saving them time in fuel collection.

Time did not permit any systematic survey of the use of improved stoves in small businesses (indicator D.4), though such uses were observed. Table 9 lists a number of biomass energy-intensive small businesses operated by men and by women in

Namibia. As can be seen, biomass energy-intensive small business are more frequently operated by women than by men; men are rather more the suppliers of fuelwood to the women-owned businesses.

Table 9. Energy-intensive Small Businesses Operated by Men and Women in Namibia

Men	Women
Roasting meat	Omalodu beer brewing
Selling firewood in market	Marula nut oil processing
	Bakeries
	Pottery
	Fish smoking
	Cooking and vending food
	Canning*
Source: Field observations and interviews	*Under experimentation by solar stove project.

7.4 Recommendations

Based on the above findings at the implementation level on gender integration in stove production and in stove design, purchase and use, the following recommendations were made by the team:

i. In future, NAMBESP records should include information about participation of and effects of interventions on men and women. This could contribute among other things to a) better selection and retention of trainees as recommended by Mika, 2001, and b) a workshop aimed at exchange of information among stove producers on customer preferences and design improvements.

ii. Given its interest, field capacity, and the relevance of biomass energy conservation for its activities, closer cooperation with the NGO Women's Action for Development should be actively pursued by NAMBESP as well as NAMBESC, beginning with a presentation by WAD on its approach and activities to NAMBESC to identify concrete areas for cooperation.

iii. In support of the new emphasis on small business BEC used in ProBEC, and in recognition of the importance of this energy use for both men and women in Namibia, a feasibility study on biomass energy conservation for small business in should be carried out as soon as feasible, possibly in cooperation with WAD. A terms of reference for the feasibility study should be developed by the Namibian counterparts, based on the "ProBEC

guidelines for developing a good TOR" and on the information contained in this report.

8 Lessons learned and recommendations

8.1 Recommendations to NAMBESC on gender integration in biomass energy conservation in Namibia

In summary, based on the above findings, the following recommendations can be made at on gender integration in biomass energy conservation (BEC) at the policy, institutional and implementation levels in Namibia. [more summary of earlier findings in this section?]

Policy level: the National Biomass Energy Management Strategy

i. Given its absence in the current terms of reference, a specific activity and contract for socio-economic and gender input to the National Biomass Energy Strategy issues paper by Stewart Scott should be planned and implemented.

ii. Taking into account the need for greater understanding of gender concepts in national energy policy, gender and energy training should be provided to staff of the Ministry of Mines and Energy as part of orientation and/or in-service training.

Institutional level: the Namibia Biomass Energy Management Steering Committee (NAMBESC)

iii. The tremendous resources and interest of social science research and women's organizations in Namibia should be enlisted concretely in joint activities with NAMBESC. These include for example the Multi-Disciplinary Research Centre, Social Sciences Division and its Gender Training and Research Program at the University of Namibia (UNAM); Women's Action for Development (WAD), an NGO; and the Ministry of Women's Affairs.

iv. In order to improve understanding of gender concepts in the SC, training in gender in biomass energy conservation should be provided to NAMBESC, through a mini-workshop at a regular meeting.

v. To ensure that gender issues are systematically addressed in NAMBESC work, terms of reference for all NAMBESC studies should require disaggregation of participation of and effects on men and women as well as their implications for strategy.

Implementation level: National Biomass Energy Saving Project (NAMBESP)

vi. In future, NAMBESP records should include information about participation of and effects on men and women. This could contribute among other things to a) better selection and retention of trainees as recommended by Mika, 2001, and b) a workshop aimed at exchange of information among stove producers on customer preferences and design improvements.

vii. Given its interest, field capacity, and the relevance of biomass energy conservation for its activities, closer cooperation with the NGO Women's Action for Development should be actively pursued by NAMBESP as well as NAMBESC, beginning with a presentation by WAD on its approach and activities to NAMBESC to identify concrete areas for cooperation.

viii. In support of the new emphasis on small business BEC used in ProBEC, and in recognition of the importance of this energy use for both men and women in Namibia, a feasibility study on biomass energy conservation for small business in should be carried out, possibly in cooperation with WAD. A terms of reference for the feasibility study should be developed by the Namibian counterparts, based on the ProBEC "GUIDELINES: How to develop a good TOR" and on the information contained in this report.[1]

8.2 Application of the World Bank Methodology on Participatory Assessments to the biomass energy conservation sector: Some observations and lessons

Though not the main purpose of the exercise, the application of the Methodology on Participatory Assessments to the biomass energy conservation sector was one of its most interesting and useful aspects. This methodology was originally developed for use in the water & sanitation sector by the World Bank Participatory Learning & Action Initiative, which tested and proved the methodology in 88 villages in Asia, Africa and Latin America. The MPA integrates gender and poverty with demand and sustainability. It combines participatory tools in self-assessment with statistical analysis at community, institutional and policy levels. This methodology is currently being adapted to the energy sector in a decentralized rural electrification GEF project in Cambodia. An early effort to

[1] ProBEC is reportedly developing a standard TOR on this subject and this should be inquired into by MME. Another source, also available from ProBEC, could be Ina Kersten, "Results of a Household Energy Survey in Western Senegal - The Town of Kaolack," which in spite of its title includes the industrial and commercial sector. Energy in women's small businesses is the subject of the personal research program of Dr. Joy Clancy, Technology & Development Group, University of Twente, who would be interested in being involved in the study and can be contacted at J.S.Clancy@tdg.utwente.nl.

adapt the MPA for use in biomass energy projects is ongoing by the Asian Regional Cookstoves Program (ARECOP).

Gender integration was assessed at the policy, institutional and implementation levels, corresponding to the three levels of ProBEC interventions in this case study in Namibia. Only gender-sensitivity indicators were selected from the MPA, not poverty or demand-responsiveness indicators. Only a few selected indicators were developed and used, given time and logistical constraints. And only some parts of the methodology were experimented with: for example, there was no process of working with communities work followed by a stakeholders' meeting. The application of the MPA in this case study certainly does not reflect the sophistication and potential of the methodology in this or other sectors.

Despite these caveats, however, a number of valuable lessons were learned that could contribute to further developments in the adaptation of the MPA in both the biomass and other energy sectors:

- Since testing the MPA was not a formal objective, many of the lessons learned not surprisingly concern the need to budget adequate time for development of indicators, testing, training, and application to a larger sample. Each exercise takes considerable time, and simply moving around in rural areas is very time-consuming;

- But even given these inadequacies, very useful results were achieved that can be directly applied at policy, institutional and implementation levels;

- Using these tools was a very good training tool on gender and biomass energy - both for the team and for the participants, at every level.

- Gender analysis and other MPA exercises worked well, but they should focus more on BEC, cooking and fuel collection activities which can then be used to discuss impacts of stoves on these.

- The approach to adaptation of the MPA worked best when begun by identifying key gender issues in the sector, and only then moving to selecting and adapting appropriate indicators from the MPA guidelines. This reverse approach was adopted after encountering difficulties in simply editing the MPA indicators, and proved very successful.

8.3 Recommendations to GTZ/ProBEC on gender integration in biomass energy conservation at the regional level

The GTZ Program on Biomass Energy Conservation in southern Africa, like other biomass energy programs and projects, has taken for granted that its activities benefit women, and thus has not taken an explicit gender perspective. Using the indicators

developed above for the Namibia case, it can be seen that ProBEC scores well in many areas in gender-sensitivity, for example:

- ProBEC promotes capacity-building and commitments in the southern African region to biomass energy conservation, a sector that focuses on cooking, an energy need of great importance to women;

- of the three staff members in the regional ProBEC office in Harare, the ProBEC Coordinator is a women, the Energy Expert is a man, and the secretary is a woman;

- According to the ProBEC office, more than half of the consultants hired are women, and there is a distinct preference given to women; national steering committees are informally encouraged to include women in their membership; and at least 50% of participants in regional and national training workshops are female.

Nonetheless some similar gaps as illustrated in the Namibia case study can be noted as well:

  - the gender perspective in ProBEC is largely limited to a welfare perspective (providing women with stoves) and does not extend, at least not explicitly, to providing women with new skills or to closing gaps between men and women (see the scoring matrix for variable A.3 in Annex 4);

  - program planning and monitoring does not disaggregate by men and women (participation of and effects on) and this information thus cannot be not used in adjusting program strategy.[2] Guidelines and ToRs do not specify disaggregation by sex, and thus it can only be assumed (or hoped?) that basic "good practice" methodological approaches (eg interviewing women cooks in baseline surveys on cooking habits and fuel consumption) are being followed.

  - Although ProBEC office staff appreciate gender as a factor, can cite examples in their work, and have received some gender training, there is no specific gender expertise in the Office available to support gender-sensitive participation throughout the Programme.

A complete review of ProBEC activities throughout the region is beyond the scope of this case study. The ProBEC final evaluation report, which did review overall activities, mentions gender only in passing. Gender is not a specific topic in either of the last two Regional Workshops (November 2000 and September 2001).

[2] Gender is undoubted considered in many ProBEC activities in practice. For example "sex roles" is one of the criteria for choosing a stove in the Mika, Training Topics, 2001. However it is unclear how this information is used and how consistently it is actually collected and analysed in relation to other parameters in national or regional activities.

But based on the Namibia case study and the above findings, a number of steps can be identified to strengthen gender integration further in ProBEC. Gender integration in biomass energy conservation could be strengthened in the ProBEC concept, in the ProBEC Office itself and the services it offers, and in the national steering committees. This could be done as a complementary and self-reinforcing set of capacity-building activities.

ProBEC concept

The ProBEC concept already incorporates integration of BEC with the various development sectors. This is likely to become even more important with the additional emphasis on small business in the next phase, linking BEC more strongly to income-generation and rural and urban development. Conceptual work on the relationships between household energy, gender and rural development had already been initiated by HEP in earlier phases, and could be drawn upon in refining the ProBEC concept and activities (Klingshirn, 2000 and personal communication). Among the gender concepts that could easily be incorporated:

- Since women's informal sector income-generation activities are generally more fuel-intensive than men's, while women face special opportunities and resource constraints in their small businesses, a gendered perspective will be essential.
- A recognition of gender differences in biomass energy conservation roles and needs at the household level, as described in this report and very likely in national level reports.
- Women's organizations, whether research, NGO or political, are powerful forces in most southern African countries, and often have access to a variety of human and other resources. They have a strong interest in biomass energy due to their constituencies, and are active in rural areas.

Some specific activities in developing the concept could include:

- a literature and project review of gender in biomass energy conservation in the southern African region, per Annex 8, should be carried out as a first step.

- A standard tor for a feasibility study on BEC in small businesses operated by men and women should be developed by ProBEC, giving particular attention to needs and constraints of women-operated businesses and cooperation with women's organizations working in the sector. Useful contacts for developing this are given in footnotes 1 and 3.

- Some thought should be given to the fact that gender-balance at the regional level is not always reflected at national level, where the ProBEC Office believes that less than 50% of consultants implementing pilot

projects are women. Apparently it is sometimes difficult to find women with technical energy know-how - does this indicate the need to upgrade women's skills in this area? Another consideration is perhaps the need to balance technical consultancies with socio-economic inputs, where women consultants are more likely to have expertise. Given the need for long-term sustainability in ProBEC activities, skills that women consultants are more likely to have, in small business development, marketing and dissemination may be more important in the next phase.

- Related to the above, some thought should perhaps be given to whether gender analysis can shed some light on the failure/success to commercialize and disseminate more stoves. In Namibia, for example, while the study sample was admittedly very small, it seems that issues of household labour and control over income, as well as gendered responsibilities for fuel use and fuel collection and differential interests in new stoves, may play a considerable role in decisions about stove purchase and use. Female-headed households (over 50% of the total in Namibia) are also quite important as a target market.

Capacity-building

Judging from the Namibia case study, interest in gender issues appears high. Yet the understanding of gender concepts and gender expertise both in the ProBEC Office and in national steering committees remains weak. Gender and energy capability-building of ProBEC staff and national steering committees is therefore suggested. This could be:

- participatory training through practical exercises, role plays and lively presentations of field experiences by participants. The exercises presented in the attached annexes could be one basis for this, either at the national or at the regional level;
- Biomass energy- specific;
- Carried out together with gender experts from the country and/or region; and
- Part of a strategy discussion including follow-up activities for the participant group.

A simple means of building gender capacity at the national level could be to consider greater involvement of gender research, NGO and government women's institutions in national biomass energy steering committees - either in activities such as training, or as members. As pointed out above, the interests of women's organizations often include biomass energy as well as small business, and they often have good capacity at both policy and implementation levels.

Planning and monitoring tools

- ProBEC policy and strategy documents, proposals, terms of reference and training modules should be reviewed to ensure that they explicitly incorporate gender-sensitivity and balance. In particular the logical frameworks and proposals for the next phase of ProBEC should be reviewed to incorporate the present recommendations in activities and outputs.

- ProBEC planning and monitoring records and reports should disaggregate participation of and effects on men and women, and this feedback should be used to adjust program strategy.

- The MPA, including both poverty- and gender-sensitivity indicators, should be reviewed and considered as a possible approach as part of the current ongoing work by ProBEC to strengthen monitoring systems through Participatory Impact Monitoring (PIM). Links with ARECOP, which is working on adapting the MPA to biomass energy conservation in Asia, should be developed. An international meeting on gender integration in biomass energy conservation, including ProBEC, ARECOP and GENES in Latin America, could be considered as a future activity.

Cooperation with regional and international gender and energy networks

The task of integrating gender into ProBEC can be supported through active cooperation and interaction with gender and energy networks at the national, regional and international level in incorporating gender messages in ProBEC advocacy - and vice versa, biomass energy messages in gender advocacy. Some opportunities include:

- the gender and biomass energy paper referred to above, already planned together with SAGEN and ENERGIA;
- WSSD advocacy, for example, by inviting SAGEN to exhibit at the planned GTZ/ProBEC "Tin Can" restaurant; and presentation of this Namibia case study in various fora and its publication eg in the planned ENDA book for WSSD;
- Exchange of information on energy and income-generation projects elsewhere;[3]
- Training: developing a set of gender and biomass energy training modules, training national gender trainers to use these, and carrying out national training workshops.

[3] Wamukony (1999) notes that opportunities for income generation for women in Namibia seem rather limited; this may be typical of the region. She suggests exchange of information on projects working elsewhere as a source of ideas on what could be feasible locally, as a function of a regional network. In this connection, a useful source of ideas is **ENERGIA News**, in particular 4.3 "Generating Opportunities: Case Studies on Energy and Women", guest edited by Salome Misana and Gail Karlsson, November 2001 (and the UNDP book that it is based on); and 3.3 a special issue on sustainable energy and women in Africa.

The above are some of the possibilities to facilitate gender integration in biomass integration in the Program on Biomass Energy Conservation in Southern Africa. Biomass energy conservation has an enormous potential to improve living standards, reduce deforestation, and provide other developmental benefits. Gender analysis is one tool to ensure that these benefits indeed materialize for both women and men in southern Africa.