

# INSTRAW

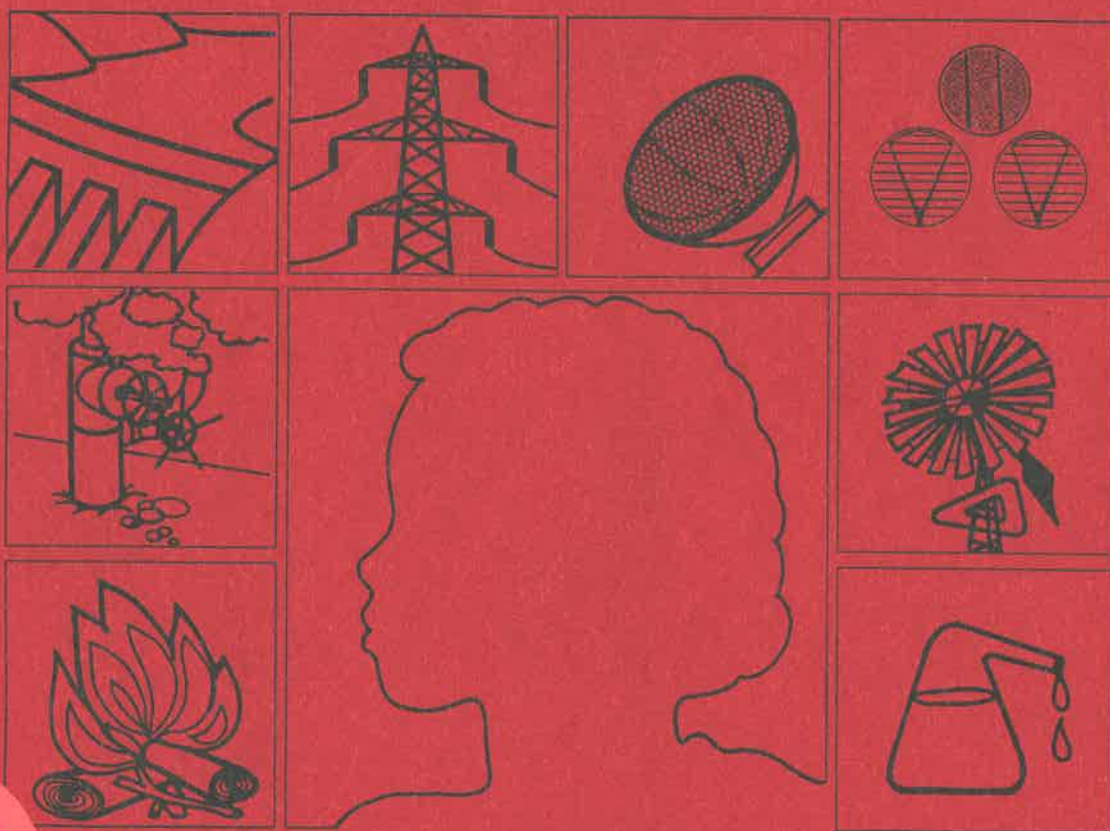
United Nations International  
Research and Training Institute  
for the Advancement of Women



## *National Training Seminar on Women and New and Renewable Sources of Energy*

*Dar'es Salaam, Tanzania*

*11-15 June 1990*



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**National Training Seminar on  
Women and New and Renewable Sources of Energy  
Dar-es-Salaam\*  
11 - 15 June 1990**

**Organized by the  
United Nations  
International Research and Training Institute  
for the Advancement of Women  
(UN/INSTRAW)**

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## INTRODUCTION

The national training seminar on 'Women and New and Renewable Sources of Energy' was held in Dar-Es-Salaam, Tanzania, from 11 to 15 June 1990, at the Tanzania Bureau of Standards and was attended by 28 participants and observers. (See Annex I)

The seminar was organized by the United Nations International Research and Training Institute for the Advancement of Women (INSTRAW) within the framework of a project funded by the Government of Italy. The aim of the training seminar was to test a multimedia modular training package on "Women and New and Renewable Sources of Energy" in a national context. The training package was jointly prepared by INSTRAW and the Centre for Advanced Technical and Vocational Training of the International Labour Organization ILO/Turin.

### **I. ORGANIZATION OF THE SEMINAR**

#### **A. Opening Addresses**

The opening of the seminar was co-ordinated by Ms Marina Vaccari, INSTRAW Project Co-ordinator. She expressed the Institute's gratitude to the Government of the United Republic of Tanzania for hosting the seminar and to the Government of Italy for having funded the project. She also thanked the Tanzania Bureau of Standards for their support in the seminar's organization and expressed the hope that attendance at the seminar would prove a fruitful experience for the observers and participants alike.

Ms Vaccari introduced the Assistant Resident Representative of UNDP, Tanzania, Mr. Soren Tejno. On behalf of the United Nations Systems, Mr. Tejno welcomed the Honourable Ms Getrude Mongella, INSTRAW Board Member; the Honourable Minister Ms Anna Abdallah; His Excellency Mr. Baldocci, the Ambassador of Italy. He paid special tribute to INSTRAW for organizing the first national seminar on "Women and New and Renewable Sources of Energy", which aimed at promoting the integration of women in the development, management and utilization of NRSE.

He pointed out that the United Nations systems has recognized the important role of women in development, by proclaiming the United Nations Decade for Women in 1985, and focusing its efforts on improving the living conditions of women. Furthermore, he stated that Tanzania and United Nations was conducting a programme on 'Women Appropriate Food Technology (WAFT)' which was being implemented in 34 villages, as well as a programme designed to strengthen the self-help capacity among women in the sisal



industry. He also underscored that the problem of women and energy sources has a complex issue since women spend long hours fetching fuelwood and are subsequently exposed to smoke from fire places resulting in health problems. The ecological balance was also underthreat, partly because of the increased pressure on scarce energy resources.

Finally, he expressed hope that by the end of the seminar the participants would have adopted a policy of promoting the integration and participation of women and an action plan on optional ways of assessing the design and implementation of the NRSE programmes.

He concluded by congratulating Ms Mongella on her election as a Member of the Board of Trustees of INSTRAW and wished the seminar a success.

Ms Vaccari introduced Ms Borjana Bulajich, Associate Social Affairs Officer of INSTRAW, who addressed the participants on behalf of the Director of the Institute, Ms Dunja Pastizzi-Ferencic. She welcomed the Honourable Ms Anna Abdallah, Minister for Local Government, Community Development, Co-operatives and Marketing, the Honourable Ms Getrude Mongella, INSTRAW Board Member, His Excellency Mr. Baldocci, Ambassador of Italy and UNDP representative. She expressed gratitude to the Government of Tanzania and Tanzania Bureau of Standards for hosting the national training seminar.

Ms Bulajich said that this training seminar represents the final phase of the project on "Women and New and Renewable Sources of Energy" funded by the Government of Italy. She pointed out that INSTRAW had been given the mandate by the Inter-Agency Task Force on NRSE to be the lead agency within the United Nations systems on "Women and NRSE". The seminar represented one of the Institute's activities within this field. She elaborated on the objectives and activities of INSTRAW, particularly in the realm of NRSE.

Furthermore, she stressed the crucial role women play in energy programmes, policies and projects and the need for more effective women's involvement at all levels of energy projects and programmes.

She said that the consequences of inadequate energy sources were greatly in evidence although, they affected rural women most severely. Women were collectors of various energy sources, disseminators, users, family educators, motivators and agents of change. In this regard, they were responsible not only for themselves, but also for family members and the community at large.

Like all development problems, Ms Bulajich pointed out that the issue of NRSE was multidimensional in scope. The energy sector was not isolated; but constituted a part of the economic and social system and affected agriculture, industry, transport, services, housing and other areas. The interconnectedness of all these sectors means that problems in one will spread to other areas, especially as regards to the issue of ecological balance.

Ms Bulajich explained that the multi-media modular training on "Women and New and Renewable Sources of Energy" was prepared by INSTRAW in co-operation with the ILO-TURIN Centre. Their development was based on several factors: on seven years of INSTRAW research in this field; on the technical and training activities of the ILO/TURIN Centre subsequent to the Programme of Action adopted by the United Nations Conference of NRSE held in Nairobi, 1981 and the "Nairobi Forward-looking Strategies for the Advancement of Women", 1985; and on the use of all the documents compiled within and outside the United Nations System.

She underlined that the objective of this training seminar is to adapt training packages formulated at the international level, to national and local levels in order to upgrade women's needs and their participation in planning, technology development, design and implementation of NRSE programmes and projects.

She concluded her speech by extending her best wishes to the participants, resource personnel and observers for a fruitful and successful seminar, and thanked them in advance for their contributions.

Ms Vaccari then introduced the Ambassador of Italy, H.E. Pasquale Baldocci. He extended greetings from the Government of Italy to the organizers and participants of the seminar. He said that the promotion of women's role in the social and economic activities of developing countries through the greater utilization of new and renewable sources of energy was a rewarding challenge deserving special attention and care because of its manifold implications.

He said that the Italian government accepted the objectives set out by the "Forward-looking Strategies for the Advancement of Women to the year 2000", approved by the Nairobi Conference for Women in 1985. The Italian law on co-operation had explicitly acknowledged the principle that the advancement of women was a primary objective and a decisive component of all development policy. To attain this goal the following priority areas of actions had been identified:

1. Improvement of living standards and working conditions of women and the raising of their social status;
2. Supporter women's organizations to enable them to participate in their country's social, cultural and economic activities, so that the development process can be precipitated and women may both participated and benefit from the process;
3. The formulation of initiatives appropriate to local conditions and designed to foster an effective development process.

Ambassador Baldocci underlined that the seminar coincided with this approach and represented a first commitment in this field for Italian co-operation in Tanzania. He said that women's potential contribution to

the development of Tanzania was not yet fully exploited and the work of the seminar would represent a positive contribution to the promotion of women's participation in Tanzania's economic and social development.

He also underlined that the Government of Italy gave highest priority to the issue of NRSE because of its relevance to protection of the environment. He concluded by expressing his best wishes for the seminar's successful outcome.

The local co-ordinator of the seminar, Ms Getrude Mongella, then made a statement in which she expressed her gratitude for her election by the Economic and Social Council (ECOSOC) as a Board of Trustees member of INSTRAW and promised to faithfully contribute to the development of INSTRAW. In this respect she said her first task would be to develop a strong focal point for INSTRAW in Tanzania.

Ms Mongella also expressed her appreciation to INSTRAW for having organized this seminar and to the Italian Government for having provided the necessary funds.

She stressed the importance of the seminar for Tanzanian women and said it had been convened at a crucial moment, coinciding with the Government's formulation at its national energy policy. She expressed the hope that the seminar's outcome would lead to a sustainable programme for the improvement of women's conditions through the utilization of NRSE technologies, and called upon bilateral and multilateral development co-operation agencies to contribute to the achievement of this goal.

Finally, the Hon. Anna M. Abdallah (MP), Minister for Local Government, Community Development, Co-operatives and Marketing addressed the seminar. She welcomed all participants and noted that international community recognition that women play a prominent role as producers and users of energy was an encouraging development. Consequently there was a need to pay special attention to their present and future needs in this area.

She said that in Tanzania the cheaper source of energy was fuelwood and charcoal which represented about 89.9% of total consumption. By the mid 1980's such fuelwood demand had exceeded the regeneration of forests by about 35%; so that most parts of the country had fuelwood deficits.

She further noted that women in Tanzania, like in most of the African countries, were responsible for collection, storage and management of fuelwood. As deforestation increased so women and their principal supporters in this task, mainly young children, had to walk longer distances carrying heavy loads. Fuelwood collection thus was becoming an unpleasant burden.



Apart from fuelwood and charcoal, she went on saying, imports of petroleum products, and energy from this source, constituted about 7% of the total energy consumed, but only 16.1% of this source of energy was for household use. Similarly, the country has a number of conventional and renewable potential sources of energy. The most important is biomass, which is in the order of 318 mn tons of oil equivalent. Hydropower potential is estimated at 3.8 GW, with an annual firm energy capability of about 20,000 GW hours but only 330 MW of the hydropower potential have been exploited so far. Natural gas resources are estimated at 1,715 bn British cubic feet, of which 726 bn British cubic feet are proven resources. Coal deposits are estimated at about 1,045 mn tons of oil equivalent of which 167 mn tons of oil equivalent are being exploited. Other potential renewable sources of energy include solar, wind and animal power.

The policy of the Government of Tanzania, she stated, was to develop NRSE for the following purposes:

- (i) To raise living standards of the rural population by the provision of decentralized energy systems;
- (ii) To minimize present dependence on imported fuel i.e. petroleum and its derivatives;
- (iii) To reduce demands on fuelwood reserves through the introduction of more efficient stoves and charcoal production techniques. To this end afforestation programmes and NRSE technologies, such as biogas, solar, wind and hydropower energy sources are being enhanced.

However, she pointed out, it was clearly obvious that these praiseworthy objectives would require a long time to be achieved, because of the prevailing economic crisis leading to reduced budgetary allocations. Therefore the Government has taken other policy measures in order to encourage and accelerate the movement away from the present excessive dependence on charcoal and fuelwood for household energy requirements. In the Budget proposals before Parliament, the Government had announced the abolition of taxes on electric and gas cookers, solar energy equipment and on kerosene stoves. This was designed to encourage people to make greater use of those gadgets by lowering prices. The Hon. Anna Abdallah then emphasized that the "Nairobi Programme of Action for the Development and Utilization of New and Renewable Source of Energy", adopted at the Nairobi Conference in 1981, and the "Nairobi Forward-looking Strategies", adopted at the Women's World Conference in 1985, called for an increased commitment from national Government to integrate women in the policy formulation and the planning process, so that women were full partners in decision making and the implementation process. They also called upon the international community to increase their efforts in supporting national governments in these endeavours.

In this regard, she pointed out that, the theory and practice of participation in decision-making required involvement at two distinct levels: firstly, participation through membership of the relevant decision-making meetings; and secondly, participation through active contributions in debates at such meetings.

She suggested that it was not enough for women merely to become members of relevant decision-making organs as one could attend a meeting as a passive observer, without being heard. It was therefore of greater importance and relevance for women to focus attention on articulating their needs and interests effectively, thereby influencing decisions in their favour. She expressed the hope that this point would be given due attention in the discussion on the role of women in NRSE.

At the conclusion of her speech, the Hon. Anna Abdallah stated that, although the objectives of this seminar was to adapt the training package on "Women and New and Renewable Sources of Energy" to national level needs, she hoped that the participants would be able to achieve some pragmatic and practical recommendations to the Government. The letter would serve as guidelines for action on the involvement and participation of women in decision-making and implementation of the National Energy Policy. Finally, she declared the seminar opened.

B. Adoption of the Programme of Work and Election of Chairperson and Rapporteur

The programme of work of the seminar was then adopted by the participants (See Annex II). The participants designated Honourable Ms Gertrude Mongella, INSTRAW Board of Trustees, as the chairperson and rapporteur of the seminar.

C. Adoption of the report

After the presentation of all modules and both general and working group discussions, the report of the seminar, including all recommendations made at the seminar, were adopted by consensus. The report was presented by the Rapporteur of the meeting.

D. Closing of the Seminar

Following the adoption of the report, a closing ceremony was held. Concluding remarks were made as follows.

At the closing of the seminar the co-ordinator of the project Ms Marina Vaccari thanked the Government of Tanzania for having hosted the seminar, the Government of Italy for having sponsored it, the Seminar chairperson and rapporteur, participants, observers and all who had contributed to make the seminar a success. She said that beside the basic purpose of training and sensitizing decision makers and senior officials on



the need of integrating women in NRSE activities, the seminar had also certainly contributed to convey a message of friendship, mutual understanding and co-operation and this was an important objective in itself.

Ms Borjana Bulajich, on behalf of the Director of INSTRAW, thanked the Government of United Republic of Tanzania, and the Tanzanian Bureau of Standards for hosting the seminar, as well as the Government of Italy for having provided funds for the project in the framework of which the seminar had been organized. She also thanked Ms Gertrude Mongella, INSTRAW Board Member, for her active role in the seminar and thanked participants for sharing their experience in the field of women and NRSE. She expressed her gratitude to the resource people for their presentations, the Secretariat and support staff for their invaluable technical assistance.

Ms Bulajich expressed the hope that the participants would consider conducting local seminars using the modules. She stressed INSTRAW's interest in following up on the results of the national seminar and ensuring a multiplier effect. Finally, she noted that as soon as the report was published in final form each participant would receive a copy.

The Ambassador of Italy Mr. Pasquale Baldocci then expressed his appreciation to INSTRAW and the organizers of the seminar for the way the seminar had been conducted. He said that his Government was considering the opportunity of sponsoring other activities aimed at improving the living conditions and promoting the advancement of Tanzanian women and in this respect the recommendations made during the seminar will be given due consideration.

Finally, the seminar chairperson the Hon. Gertrude Mongella thanked INSTRAW for having organized the seminar in Tanzania, the Government of Italy for its generous support, and all participants. She also expressed the hope that the recommendations of the seminar may lead to further activities aimed at improving the conditions of Tanzanian women through the utilization of NRSE systems.

## **II. PRESENTATION OF THE STRUCTURE AND METHODOLOGY OF THE MULTIMEDIA TRAINING PACKAGE**

The representative of INSTRAW and co-ordinator of the seminar, Ms Marina Vaccari, briefly illustrated the content of the training package on "Women and New and Renewable Sources of Energy", jointly developed by INSTRAW and the ILO/TURIN Centre in 1989.

She said that the training package consisted of five modules, which could be used together in a predetermined sequence for the implementation of a one-week training seminar, or separately in other training seminars.

She explained that the methodology used in preparing the modules was based on a participatory approach, and pointed out that the modules were conceived as a package containing the following: a trainer's guide, a text, additional reading material, a bibliography, audiovisual materials and evaluation questionnaires for trainees and trainers. The modules, she said, addressed specific target groups: development planners and senior officers of the management of energy programmes; and senior officials of women's organizations and non-governmental institutions at national, regional and international levels.

The purpose of the seminar, she pointed out, was to test the training package in a national context.

### III. PRESENTATION AND DISCUSSION OF THE MODULES

#### A. MODULE I: "An Overview of the United Nations Activities in the Field of New and Renewable Sources of Energy" was presented by Ms. Christine Warioba.

In her presentation Ms. Warioba noted that an adequate supply of energy was a prerequisite for development. This was one of the reasons, she said, the United Nations had always paid attention to energy issues, especially to the development and utilization of new and renewable sources of energy, in view of the prominent role they played in the energy supply of developing countries.

She recalled the United Nations Conference on the Development and Utilization of NRSE, which took place in Nairobi, Kenya, in 1981. The Conference approved the Nairobi Programme of Action (NPA), which still represents the basic framework for United Nations activities in NRSE. The NPA called for concerted international co-operation and identified the main areas for action in promoting the development and utilization of NRSE.

In 1987, she said, the United Nations had convened a high-level meeting of experts to review and assess the implementation of the NPA. The experts recognized that the pace of implementation of the NPA was slower than anticipated, mainly due to the fact that the price of oil declined, and consequently the interest in the development of NRSE decreased. Other constraints identified were the difficulties in promoting information. It was also pointed out that inadequate attention was given to the cultural, social and institutional aspects of energy development, including the insufficient involvement of women in the planning and implementation of NRSE projects and programmes.

Ms. Warioba noted that there was renewed interest in NRSE because of growing concern for the detrimental effects of deforestation and the ecological imbalance in many parts of the world.

She pointed to the respective roles and activities of the United Nations organizations and bodies in the field of NRSE. She mentioned that an Intergovernmental Committee on the Development and Utilization of NRSE, and an Inter-Agency Group on NRSE were created following the Nairobi Conference. A Special Co-ordinator on NRSE was appointed in the United Nations Office of the Director-General for Development and International Economic Co-operation.

She pointed out that women as agents and beneficiaries of the development and utilization of NRSE must be fully integrated in the implementation of all activities in the field within the United Nations system. The Nairobi Programme of Action, she said, recognized the special role played by women in NRSE and noted that every effort should be made to ensure that actions in this field involved and benefited men and women equally.

Finally, Ms Warioba said that the United Nations Nairobi World Conference to Review and Appraise the Achievements of the United Nations Decade on Women, convened in 1985, had adopted the "Forward-looking Strategies for the Advancement of Women to the Year 2000". The Strategies, she pointed out, recognized energy as a priority area for action to promote the advancement of women, and made recommendations on specific measures to be taken in Tanzania.

**A PRESENTATION: THE NATIONAL ENERGY POLICIES IN THE FIELDS OF NRSE  
WAS MADE BY MR. ESTOMIH N. SAWE**

He said that at the moment there was no approved National Energy Policy document. In 1989 the Ministry formed a National Energy Policy Task Force to assist in the formulation of a master plan on national energy policy and energy development. Since energy issues are multisectoral, the energy policy Task Force included a number of officials from various ministries and other institutions. The first draft of this document had been completed and would be circulated to enable potential institutions and individuals to provide inputs in the energy policy document. However, in the course of carrying out energy development activities certain policy guidelines had emerged as elaborated below.

The goal of any nation is social and economic development. Energy is a prerequisite for proper functioning of nearly all sub-sectors of the economy. It is an essential service whose availability and quality can determine the success or failure of other development efforts. The overall goals for National Energy Policy will therefore be the following ones:

1. The exploitation of rich hydro-electric resources;
2. The development and utilization of other indigenous energy resources, such as coal and natural gas;

3. The stepping up of petroleum exploration activities;
4. The halting of woodfuel depletion by the development of more appropriate land management practices and efficient woodfuel technologies;
5. The ensuring of ongoing and reliable energy supplies;
6. The minimization of energy price fluctuations to ensure stability of prices through strengthening and rationalisation of energy supply sources and infrastructure and a rational energy pricing structure;
7. The development of human resources for development of energy technologies.

NRSE - Policy which has emerged through observations

1. Woodfuel-charcoal and fuelwood- resources account for over 90% of final energy consumption in 1988 and will continue to dominate the national energy balance for the foreseeable future. Presently a serious shortage in woodfuels exists most acute around major urban centres.

Woodfuels Policy:

- (1) This policy consists of the following provisions: An increase in supply through afforestation and proper forest management to allow woodfuel for development;
- (2) A reduction in consumption through demand management by introducing efficient woodfuel conversion and utilization technologies in agro-processing and other wood-consuming industries;
- (3) The encouragement and facilitation of fuel substitution to encourage the use of other energy sources instead of woodfuels, such as electricity.

Other NRSE technologies are being investigated for promotion and use throughout the country. The policy will focus on providing a direct substitute for woodfuel and petroleum products and on renewable energy technologies applicable to the needs of women in rural areas.

A 15 years NRSE development programme was incorporated into the National Energy policy document. The programme objective was to develop and promote the use of indigenous renewable energy sources for the following purposes:

- (1) To reduce dependence on imported fuels, which are presently draining the country's few foreign currency reserves;



- (2) To improve living standards of the rural population by developing and promoting the use of decentralised energy systems for areas located away from the urban areas;
- (3) To reduce demand on woodfuels reserves by developing and promoting the use of more efficient woodfuels technologies.

In formulating NRSE policy the following factors should be taken into consideration:

- (1) Energy demand needs;
- (2) The energy data base: the availability of NRSE and their seasonal variation;
- (3) The available RET for harnessing NRSE;
- (4) Social-cultural constraints in implementing both the policy and programmes;
- (5) The economic viability of NRSE; and
- (6) Institutional arrangements.

Mr. Sawe concluded by saying that in the formulating of a national NRSE policy the Government of Tanzania clearly realized that NRSE would play a very useful, throughout dominant, role in developing the country's economic development. Therefore the country's future energy supply would continue to be comprised of a mix of fossil fuels, hydropower and NRSE.

A discussion followed the presentation of National Energy Policy in the field of NRSE. The participants raised the issue of the necessity of creating awareness on the role of women and NRSE in both rural and urban areas. A question was raised as to how the National Energy Policy would address the problem of rural women, particularly at the household level. Another issue was the extent to which the Ministry considered NRSE to be a priority and the amount of funds that would be allocated to this important issue.

The representative from the Ministry of Energy, Mr. Sawe, replied that the ministry was in the process of preparing the energy master plan for the next 15 years. He pointed out that the Ministry had constructed nine biogas plants in peri-urban areas and that the substitution of fuelwood at household level has not a simple task to accomplish. He said that the policy was to improve the supply of fuelwood at the national level and the introduction of technologies for improved stoves. He also pointed out that biogas energy was not a source of energy suitable for the poor as construction costs were very high (a 16 m<sup>3</sup> domestic plant costs 200,000 Tanzanian shilings). He emphasized that the national priority in the field of energy sources was reduction dependence on imported energy and that the Ministry had formed a special section dealing exclusively with NRSE.

As regards the role and needs of women in NRSE it was pointed out that the survey for the preparation of national energy policy did not adequately reflect women's predicament. It was recommended that the survey incorporate women's needs at the national level and that the preliminary draft containing only one paragraph on women should be circulated among participants to permit its expansion. It was also recommended that training should be organized for women at all levels in the various NRSE programmes and projects.

The participants pointed out that there was a great need of identifying the existing structures of all institutions dealing with women and NRSE and of better co-ordination, since there constituted crucial problems affecting the fields of education and training and the dissemination of information.

**B. MODULE II: "The Role of Women in NRSE" was presented by Ms Gladness Mziray**

Ms Mziray explained that the objective of this module was to examine the role played by women in NRSE and to identify the main constraints to the integration of women's needs in energy policies and planning. Suggestions for possible solutions for better integration of women in NRSE in Tanzania would be formulated as follows:

The energy crisis in developing countries, including Tanzania, calls for future planning of new energy systems to meet demand.

The NRSE includes solar energy, hydropower, power from the seas, geothermal, wind, biomass, peat, oil shale, tar sands and animal draught power.

The problems of energy supply in developing countries is due principally to insufficient technical and financial means to harness conventional sources of energy and to exploit new sources. Hence the need for the development of NRSE should be stressed.

Women are directly affected by the problems of energy because they are the primary users of energy at the household and community levels. Their roles in agriculture, domestic work and income generating activities require the utilization of energy. Wood is the main source of energy in Tanzania and it is becoming increasingly scarce. As the task of collecting wood is a task traditionally assigned to women, this represents a heavy burden for women who have to spend, up to 83% of their time collecting wood, according to our estimate.

Women as main suppliers and main users of energy play a vital role in the development and management and utilization of NRSE.

- Despite their role in using, supplying and distribution of energy they are usually not involved in policy making, planning and evaluation of energy programmes or projects.
- She pointed out that to promote the development and management of NRSE to meet energy requirements, women's needs and participation should be promoted in the following ways:
  - By considering women activities and needs at all levels in the development and management of NRSE;
  - By making the community aware of NRSE costs and advantages;
  - By sensitizing policy makers and planners on gender issues;
  - By involving women in identifying areas for research and development on NRSE technologies;
  - By promoting research on NRSE technologies as a continuous process to replace outdated technologies as and when needed;
  - By strengthening institutions for energy planning and programming with a focus on women needs;
  - By setting up training centres within rural areas to reach women as end-users of NRSE.
  - By integrating NRSE issues in education and training programmes to develop management skills in technical fields;
  - By promoting constant evaluation of NRSE programmes and projects to increase their effectiveness.

The general discussion of Module II, focussed on the needs for better co-ordination among the different institutions dealing with women and NRSE issues. The need was expressed for dissemination of information from the grass-root level up to top - institutional levels and vice versa.

To disseminate available information on NRSE systems all existing institutions and different forms of communication should be used. It was stressed that energy planning should take into account different conditions in the various regions and districts of the country.

It was pointed out that there should be co-ordination among various ministries involved in different projects and programmes focusing on women and NRSE. The need to define the role of women at various levels of energy

planning from the household to top decision-making, echelons was highlighted as well as the need to involve women in the choice and development of NRSE technologies. In this respect, it was pointed out that socio-cultural barriers must be taken into account. The participants then divided into three working groups. The working groups were asked to discuss the following issues:

1. The identification of those NRSE technologies mainly used by women and of those with the potential to ameliorate their conditions;
2. Ways in which the participation of women in the development, management and utilization of NRSE could be improved;
3. The major constraints to the integration of women's needs in energy planning and energy policies

The working groups presented their respective reports as follows:

#### Report of Group I

##### Question 1

##### 1. NRSE Technologies

1.1 Solar energy is mainly used by women for drying crops and water heating. Its application helps relieve the burden of collecting other sources of energy.

1.2 Hydropower: The technology to exploit this is not very simple and the costs involved are high. Hydropower is harnessed by TANESCO, an electricity-generating firm in Tanzania, so some women in urban centres benefit from this source of energy. This hydropower source has enormous potential in Tanzania.

Recommendation: This potential should be exploited and much emphasis should be put on exploitation of micro, mini and small-hydro power schemes to benefit people in rural areas. TANESCO should give priority to small scale schemes as well.

1.3 Power from the seas: Such a source of power is not utilized.

1.4 Geothermal: This power source has not been harnessed as yet in Tanzania.

1.5 Wind power: It is traditionally used by women for harvesting fruits like oranges, etc. as well as for cooling purposes. Fishing boats are also powered by wind energy. Women are benefiting from crucial power instances when windmills are used for water pumping.



Recommendation: The potential of this source is enormous, especially for water pumping and should be given high priority in planning.

1.6 Biomass: This is the source of energy mainly used by women, especially woodfuel as it is simple to use. On the negative side, however, woodfuel is hazardous to the health; its utilization is costly, especially in urban centres; and its overexploitation degrades the environment. The traditional three-stone fire place used by most women exposes them to considerable heat radiation which is also hazardous.

Recommendation: The technology of making fuel-efficient cookstoves should be disseminated to women. In afforestation projects, trees specifically used for woodfuel purpose should be prioritised in planting.

1.7 Animal draught power: This is generally used for transportation and agricultural purposes. The use of animal power also brings along a potential benefit as animals give milk, meat, skin etc.

Recommendation: Animal draught power should be popularized, especially for transportation purposes. Financial institutions providing loans should give priority to women loan applications for animal-powered carts to facilitate transportation.

- Both men and women should in general be mobilized to work together in using technology, so that women are not be overburdened by production of these new technologies.
- To effectively use animals as draught power, cross-breeding should be used to improve the stock. The government should also strengthen veterinary services.

1.8 Peat: Peat is not used in Tanzania

1.9 Oil Shale: Oil shale is not used in Tanzania,

1.10 Tar sand: It is doubtful whether surveys on availability of such sources have been carried out in Tanzania.

## Question 2:

2.1 Women should be involved right from the beginning in developing NRSE projects so that projects take care of their needs and interest.

2.2 To effectively manage and utilize NRSE women should be owners and also make decisions regarding NRSE.

### Question 3

#### 3.1 Constraints

- (i) In most cases women are not owners of NRSE
- (ii) Lack of proper education on NRSE at all levels.
- (iii) Lack of funds
- (iv) Unbalanced task-sharing prevails at the household level.
- (v) Planning is not gender-sensitive.

### Report of Group II

1. The principle NRSE technologies used by rural communities and urban low-income groups in Tanzania are as follows:

- Fuelwood - 90%
- Agriculture residues - coconut shells, trunks, and husks, maize cobs, stalks and husks cotton stalks cassava tasks, etc.
- Animal residues - cow dung
- Solar energy - dry food, food processing etc.
- Wind energy - -
- Animal power - Donkeys, mostly used in the regions of Arusha, Mara and Sinyanga.
- Biogas: - -

2. How can the participation of women in development, management and utilization of NRSE be improved?

- Through awareness creation such as encouraging the participation of women at all levels.
- Through training and education: women should be trained in installation, operation, maintenance and utilization of NRSE.
- Through monitoring and evaluation to provide a constant follow-up of women's activities to ensure the application of knowledge previously acquired.

Improvement of economic well being of women by providing credit facilities. This will enable the women to purchase NRSE equipment.

Changes in negative attitudes should be encouraged, for example, traditional cultural practices impeding the development of women and NRSE.

3. The major constraints to the integration of women's needs in energy planning and energy policies.

- (a) Barriers between professionals and the needs of ordinary women.
- (b) Lack of sensitization of planners in perceiving the needs of women in planning formulation.
- (c) Oversight in the planning, for example, neglect of traditions and social customs relating to women and their needs.
- (d) The absence of an energy policy to date addressing the issue of NRSE.

The group came up with the following recommendations:

1. The participation of women should be increased in planning mechanisms.
2. National policy on energy should be finalized as soon as possible and should incorporate women's needs.
3. NRSE development and utilization should be greatly emphasized in energy policy formulation.
4. Women's organizations and the Ministry responsible for women affairs should contribute to such policy formulation.
5. A training component should be always incorporated in the design of NRSE projects and programmes.
6. Development of NRSE should be introduced in school and college curricula.

### Report of Group III

#### a. NRSE MAINLY USED BY WOMEN

##### Agriculture:

1. Cultivating - Animal traction
2. Planting - Animal drawn planters

3. Weeding - Animal drawn weeders

4. Harvesting - Harvesters.

#### CROP/FOOD PROCESSING

1. Drying - Solar driers

2. Shelling - Hand held shellers

- Manually driven shellers

3. Decortivating - Decorticators (manually driven)

4. Winnowing - Manually driven winnowers

5. Milling and  
Grinding - Hand Mills

6. Oil Processing - Manual oil processing equipment

7. Mill Processing - Manual separator.

#### FOOD PRESERVATION

1. Improvement of traditional methods (VIHENGE)

2. Boiling, drying and salting

3. Refrigeration (solar) - very expensive

#### COOKING:

1. Improved charcoal and wooden stoves

2. Stoves fueled by alternative biomass sources e.g. husks, sawdust, cobs etc.

3. Briquettes using specially-designed stoves

4. Biogas

5. Solar cooking and water heating

6. Afforestation.



#### WATER SUPPLY:

1. Hand pumps
2. Animal-driven pumps
3. Afforestation.

#### TRANSPORTATION:

1. Animal-drawn carts
2. Human-drawn carts
3. Bicycle-drawn carts

#### LIGHTING:

1. Solar PV

#### OTHER INCOME GENERATING ACTIVITIES:

1. Brewing beer using improved wood/charcoal and waste-burning stoves.
2. "Mama Nitilies" - Use of improve wood and waste burning stoves.
3. Pottery - Tree planting.

#### b. Constraints to the Integration of Women's Needs in Energy Planning and Policies

1. Lack of information, knowledge and education on women.
2. Lack of a dissemination network
3. Lack of co-ordination of energy activities in various institutions.
4. Lack of women's participation/involvement
  - . Lack of women in decision-making bodies concerned with energy issues
  - . Lack of women-energy experts.
  - . Lack of awareness and commitment of women, already in decision-making bodies.
5. Cultural constraints on women regarding their participation in energy-issues at the grass-root level.

6. Lack of women's focal point in the Ministry of Energy, Water and Minerals.
7. Lack of support for women in adapting NRSE technologies.
8. Lack of confidence of women regarding the adaptation NRSE technologies to their needs.
9. Dual role of women as mothers and producers.

c. Improvement of Women's Participation in the Development, Management and Utilization of NRSE

1. Formulation of a deliberate National Policy which should stress the following:
  - (a) Identifying women needs categorically in NRSE as outlined in I.
  - (b) Information, education, dissemination and co-ordination of NRSE activities concerned with women.
  - (c) Increasing and strengthening women's participation at all levels of policy, planning and implementation.
  - (d) Training of more women energy experts.
  - (e) Co-ordination between the activities of the Ministries of Energy, Water and Minerals and that concerned with Natural Resources regarding afforestation programmes.
  - (f) Giving financial support to Research and Development institutions to enable them to develop and disseminate NRSE technologies for women.
  - (g) Establishing and supporting training programmes for women on NRSE matters.
  - (h) Giving grants and subsidies to women for purchase of NRSE technologies.

2. GENERAL POLICY RECOMMENDATIONS

- The need for increased awareness and commitment of women already involved in policy and planning issues on the importance of NRSE for women.

- Establishment and strengthening of women focal points in all Ministries, UWT and other institutions, specifically in the Ministry of Energy, Water and Minerals and co-ordination of their activities.
- Maximum utilization of UWT in mobilization of women on NRSE issues.

**MODULE III: "Relevant NRSE Systems: Characteristics and Technologies"**, was presented by the Acting Assistant Commissioner for Community Development (Technical and Construction), Mr. Amadeus M. Kamagenge.

He started his presentation by defining energy and NRSE. He also outlined five NRSE systems most relevant to Tanzanian women, namely biomass, including fuelwood, charcoal and biogas, solar energy, small scale hydropower, draught animal power and wind energy.

Mr. Kamagenge said that, biomass, particularly woodfuel, was the main source of energy, especially for household use. With regard to solar energy, different systems were powered by this source of energy including solar driers, solar cookers, solar stills, solar water heaters, solar engines, solar refrigeration and air conditioning and solar photovoltaic systems. He noted that certain systems for example solar driers were simple while others for example solar engines and solar refrigeration, were sophisticated in nature.

As regards hydropower, Mr. Kamagenge who had also prepared a supplementary handout on this source of energy, noted that the technology was advanced, reliable, multi-purpose, easy to exploit and non-polluting. He further noted that small scale power systems could be used to power small mechanical systems, hydraulic rams and water wheels, and small scale hydroelectric power stations.

He had also prepared a handout on animal-powered systems. He said that animal-power could be used for raising water; grinding grain and fodder; chopping, threshing, husking or stripping corn; crushing sugar cane; pressing oil producing seeds; lifting loads; drawing farm implements (ploughs, planters, etc); and for other such purposes.

Furthermore, he pointed out that wind energy was being used in Tanzania with some windmill installations in operation for pumping water in the Dodoma and Singida regions. He said this source of energy was ideal for water pumping for human, livestock and irrigation purposes for remote communities.

Several questions were asked, especially regarding the utilization of biomass, animal power and solar energy, which were satisfactorily answered. The issue of the socio-cultural implications of the utilization of domestic biogas digesters was raised.

After the discussion the participants divided into three working groups. They were asked to list the following kinds of power systems which would be of direct use to women: (a) solar, both thermal and voltaic; (b) hydro; (c) animal; (d) biomass-based; and (e) wind driven. With reference to the above mentioned systems, participants should indicate the most important applications and technologies for use by women. Also to be indicated were those applications and technologies most suitable for rural areas, and those better contributing to the improvement of women's socio-economic in each participant's own community.

The reports were presented as follows:

### Report of Group I

#### Energy Systems of Direct Utility for Women:

1. Solar systems: These comprise thermal and voltaic systems, both of direct utility to women and include solar water heating; crop drying and salt making; and photovoltaic electricity generation.
2. Hydrosystems: Both terms - mini and small hydropower stations should be expanded into an irrigation network suitable for aquaculture, as well as agriculture and for generating power for domestic and industrial use.
3. Animal drawn systems: These are used for water raising, pumping, crop-milling, transportation etc.
4. Biomass based systems: These include improved stove units; charcoal-making (pyrolysis) units; and biogas, or rural-type, digesters.
5. Wind driven systems: This encompasses water-pumping systems.
6. Applications and technologies most critical for women:

#### Applications

Water pumping .

#### Technologies

Water wheels  
(animal powered)

Circular mote

Animal powered pumps

Hydraulic rams  
(hydro-powered)



Cooking and  
lighting

Improved stoves  
Hydropower stations  
Biogas plants

Milling

Hydropower stations  
Animal powered mills

Farming and  
transportation

Animal powered implements

7. Applications and technologies most suitable for rural areas and better contributing to the improvement of women's socio-economic conditions in Tanzania:

Applications

Technologies

Water pumping

Hydraulic rams  
Water wheels  
Wind mills  
Circular mote  
Animal-powered pumps

Farming and transportation

Animal-powered farm  
implements- ploughs,  
planters pumps, carts,  
wagons

Crop drying

Direct heating using  
sun-rays (raw force)

Cooking and lighting

Improved stoves, biogas,  
pyrolysis (charcoal stoves),  
hydropower stations

Milling

Water wheels, generators

Note: Technologies should be environmentally-specific given the diversity of environments in the country i.e. where there is abundant wind-driven systems there should be popularized or where permanent rivers have rapidly moving waters, hydropowered equipments should be popularized.

## Report of Group II

### RELEVANT NRSE SYSTEMS, CHARACTERISTICS AND TECHNOLOGY

1. Solar systems of direct use to women:
  - (a) Voltaic
    - (i) At community level: lighting system; water pumping; and vaccine refrigeration
    - (ii) At household level: Lighting; and water heating
  - (b) Thermal
    - (i) At household level: crop drying
2. Hydro systems of direct use to women:
  - (a) Hydro - electricity generation; hydro mechanical for powering machines; and hydro-rams for water pumping, irrigation domestic use, and animal consumption.
3. Animal draught systems
  - (a) Ox carts; animal powered for crop processing i.e. grinding, crushing etc.; and animal powered pumps.
4. Biomass based systems
  - (a) Improved efficient stoves; biogas for cooking; gasifiers for powering water pumps; and briquettes
5. Wind driven systems
  - (a) wind mill for water pumping, crop processing; wind for willowing; and wind turbines for mechanical and electricity generation
6. The technologies critical to women
  - (a) Short term programme
    - (i) Biomass systems: improved efficient stoves; and biogas plants
    - (ii) Animal powered systems: Crop processing; transport; farming and water pumping

(b) Long term programme

- (i) Hydro-power systems
- (ii) Solar systems

Applications and technologies most suitable for rural areas and better contribute to the improvement of women's socio-economic conditions in our country.

Cooking stoves of improved efficiency;  
agriculture, transport - animal powered system  
water pumping  
Lighting - Hydropower

By using such efficient technologies women in rural areas will have enough time to participate in other economic activities thereby leading to higher incomes and improved living standards. These technologies will also lead to increased production and greater family food self sufficiency with enough surplus food generated for sale to other families.

3. Report of Group III

Systems of direct use by women:

- 1.1 Solar Thermal: water heaters; cookers (ovens);  
distillation/desalination; crop drying; and salt making
- 1.2 Solar Photovoltaic: electricity for lighting, etc.;  
refrigeration; and water Pumping (domestic and irrigation)

2. Hydro Systems

- Micro-hydro: electricity generation; water pumping: hydraulic rams and water wheels; and mechanical power: milling and grinding

3. Animal Power

- Agriculture: cultivation; planting; and weeding
- Transportation
- Water pumping
- Mechanical power: milling; willowing; and sugar cane crushing etc.

4. Biomass

- Cooking: Improved charcoal and wood stoves  
Husks and saw dust stoves  
Briquettes

- Biogas: Cooking  
Lighting  
Biofertilizer
  - Charcoal making
5. Wind
- Water pumping

## 6. Critical Applications

### 6.1 Solar (Thermal and Photovoltaics)

All applications as listed under 1.1 and 1.2 are considered to be relevant and appropriate for application to women in Tanzania. The only criticism with regard to these technologies is their costliness hence the need of grants and subsidies.

### 6.2 Hydropower

All applications as listed under (2) are also considered to be appropriate but requiring considerable volumes of financial, technical and infrastructural support both from the Tanzanian Government and donor organizations.

### 6.3 Animal Power

Under this source all the applications listed under (3) were found to be applicable and acceptable by Tanzanian women, if educational programmes for promoting the utilization of animal power were introduced, especially for women. The programmes would emphasize the importance of the technology and strive to do away with traditional beliefs and cultures hindering the acceptability of such technology.

### 6.4 Biomass

Two requirements for their applications are as follows: education for women; and financial support in the case of biogas technology because its cost is prohibitive for the majority of Tanzanian women. In the case of charcoal production, it was strongly recommended that the programmes should go hand in hand with afforestation programmes.

### 6.5 Wind

Wind pumping processes considerable big potential applicability in Tanzania. Such technology, however, requires substantial financial, technical and infrastructural support, as other similar systems.



7. MOST SUITABLE TECHNOLOGY FOR RURAL WOMEN WHICH WILL CONTRIBUTE TO IMPROVEMENT OF THEIR SOCIO-ECONOMIC CONDITIONS

7.1.1. Solar thermal

1. Crop drying
2. Salt making

7.1.2 Solar photovoltaics

- Electricity (lighting etc)
- Refrigeration
- Water pumping

7.2 Micro-hydro (hydro power)

- Electricity generation
- Water pumping
- Mechanical power (milling etc)

7.3 Animal power

- Agriculture
- Transportation
- Water pumping
- Mechanical power

7.4 Biomass

1. Cooking stoves

Coal and natural gas, although not NRSE, were regarded as possessing a vast potential in solving cooking problem because of their abundance in Tanzania. However, these resources have yet to be exploited.

It was thus recommended that both biomass cooking stoves, as well as coal and gas stoves should be promoted.

Charcoal production was found to be a potential income-generating project for rural women, especially using improved methods such as brick and metal kilns.

7.5 Wind - Water pumping

During the discussion which followed the presentations of the working

group reports it was pointed out that improved stoves are the most important NRSE for improving women's conditions in Tanzania. It was stressed that there is a need for further research work in this field, not only as far as wood- and charcoal stoves are concerned but also on stoves burning agricultural residues.

It was stressed that there is the need for a deep sociological analysis of the implications of the utilization of NRSE on the structure of the society.

To effectively use NRSE, attitudes concerning the role of women in society must be changed, together with implications of the utilization of certain NRSE.

It was recognized that women have the power to influence society if they wish and are determined to do so.

MODULE IV: "NRSE projects and programmes: Design and implementation", was presented by Mr. E. Sawe.

He pointed that the objective of the module was to enable the user to incorporate women's issues in the identification, design and implementation of NRSE projects and programmes.

He said that in the course of projects and programmes, efforts should be made to establish data bases which include all activities performed in the target area: both productive activities and activities related to reproduction and maintenance of human resources. These should clearly specify the gender and age of the performer; time spent for each activity and access to and control over resources, including project benefits.

During the project identification stage Mr. Sawe explained, women's needs should be strongly assessed by a team consisting mostly of women. This should include household and community level needs, as well as those needs and opportunities for increasing women's access to and control over resources and benefits. Women should also fully participate in setting project objectives and should be able to determine whether there will be a negative effect introduced in the project. Furthermore, he said that during project design proper research should be carried out to determine effects the project will have on female activities.

Project design should be modified if need be, to increase the positive effects and improve women's access to resources and project benefits.

Project implementation management should encourage the appointment of female staff at all levels and training should be designed to encourage female participation. Project management organizational structure should be set up in such a way that it supports women and ensures and equitable division of project resources between both men and women.

Finally, he concluded by explaining that in project monitoring and evaluation, women should be involved in designing the data and information required. The monitoring and evaluation system should measure the projects effect on women. The monitoring and evaluation data collected should include those data necessary to update and analyse women's activities and women's access and control of resources and benefits. Finally, women should be involved in the collection and analysis of the monitoring and evaluation of information and data.

A discussion followed where several participants stressed the importance of gender analysis in the different stages of projects and programmes.

It was pointed out that it is essential to implement a survey of the activities carried out in the target area by the population, identifying the performance gender and age and the time spent for each activity. This information represents an essential element for project identification, design and implementation.

The issue of incorporating women in monitoring and evaluation activities was also raised and it was stressed that participatory evaluations contributed the most promising methodology.

The participants then formed two working groups according to gender and were asked to discuss the following issues:

How do you envisage incorporating women in different stages of an NRSE project?

Identify areas where research and development can make a critical impact on women.

Identify pilot projects which may promote a better integration of women in the development, management and utilization of NRSE.

The reports emanating from the working group discussion emphasized the following points:

#### Report of Men's Group

1. HOW DO YOU ENVISAGE INCORPORATING WOMEN IN THE DIFFERENT STAGES OF AN NRSE PROJECT?

##### IDENTIFICATION:

1.0 The Problem: Problem identification by women or problem identification by others, with women's co-operation and awareness.

### 1.1 Problem Analysis:

Conceptualization of the problem according to the women's target group's perception of their situation. For example, the ability to perceive, that use of an improved charcoal stove will permit use of charcoal instead of the two or more pieces including in the use of a less efficient conventional charcoal stove.

### 1.2 Objective Analysis:

End Effect: the involvement of women would lead to a better analysis, especially if the latter possess a measure of experience with regard to the situation or problem at hand.

### 1.3 Interest Group/Stake Holders

The project makers and the beneficiary groups should involve women to be able to successfully implement the project objectives.

### 1.4 Alternative Strategies Analysis

Promoting women's involvement as a way of obtaining alternative viewpoints for solving problems, both from the beneficiaries and planners viewpoints as well as for sensitizing women on the economics of energy conservation.

## 2. PROJECT FORMULATION

### 2.1 Project Design

The project design should be functional, and serviceable. The designer belong to the same economic clan as the target group. Women in the target group should be consulted for design ideas, and the best solution is that the designer should draft the project with the target group. Women should be able to exchange information more freely. In societies where men control incomes latter would be more conscious of costs. Designs need to be gender sensitive - i.e. unisex.

### 2.2 Work Plan

Women will need to be involved in the preparation of the work plan where they possess the requisite skills. Deliberate, women training efforts should be undertaken. Women expertise should be sought from elsewhere when necessary.

### 2.3 Resource and Budget Plan

To be funded according to the project's goals.

## 2.4 Project Appraisal

In any techno-economic, social and financial analysis women's most fruitful contribution would be in the realm of social analysis in the assessment of intangible benefits.

## 2.5 Organization

Women will undertake the best organizational activities as it involves their project.

## 2.6 Project Handover

Continuity and sustainability of the project output will require women.

# 3. IMPLEMENTATION

## 3.1 Control - Project Monitoring

Participatory involvement of women is recommended.

## 3.2 Re-planning

To be formulated by women themselves.

## 3.3 Evaluation

The women beneficiaries should be the centre of the evaluation and the evaluation team should also involve women, in some cases to allow easier access.

# 4. PROJECT HAND-OVER

Project should be handed over to women who should participate in the ongoing administration of the project.

# 5. IDENTIFY AREAS WHERE RESEARCH AND DEVELOPMENTS CAN MAKE A CRITICAL IMPACT ON WOMEN

## Areas of Research:

- Local and cheap materials
- Readily available
- Simple-affordable and serviceable designs
- Efficient energy utilization technologies
- Solar power utilization



## Report of Women's Group

1. How do you envisage incorporating women in the different stages of an NRSE project?

\* A gender-sensitization session will take place at every stage.

### At Policy Level

It is important that positive influence should start from the policy-formation level. Also that focal points relating to women and development in different ministries and institutions are aware and implement policies. Therefore the stage reached is at project identification:

#### Stage One:

##### (a) Project identification

Project area, male/female needs assessment through interviewing and observation. This survey should be done by gender-sensitive persons who have attended gender sensitization seminar (including extension workers, UWT, village leaders etc).

##### (b) Designing:

During designing the following should be taken into consideration i.e. technical skills of beneficiaries, financial economical factors, marketing and management, and technical beneficiaries (women) should be involved at each stage of designing and evaluation.

##### (c) Implementation:

Women should be involved in all stages i.e. training of personnel, organizational structures, as well as beneficiaries training.

##### (d) Monitoring:

Women will be involved as both personnel and as beneficiaries

##### (e) Evaluation

Gender sensitive people should undertake project evaluations

2. Identify areas where research and development can make a critical impact on women.

- (1) Establishment of a gender disaggregated data base.

- (2) A review of the curriculum at all levels of education with the aim of providing relevant knowledge and skills for women.
  - (3) To increase chances at all levels of education to enable women to pursue further studies in the sciences.
  - (4) Establishment of Technical and Vocational Training Centres to train women.
  - (5) Resource allocation for training of women.
3. Identify pilot projects which may promote a better integration of women in the development, management and utilization of NRSE.
- (1) Dissemination of information and technology to improve stoves
    - (a) Identification of different stoves; and
    - (b) Provision of training
    - (c) Dissemination of technology of different types of improved cooking stoves; and
    - (d) Implementation and financing of the project.
  - (2) Training women at all levels in the use of new and renewable sources of energy.
  - (3) Survey of rural electrification
  - (4) Methods of financing rural transportation for women.
  - (5) Organization of projects for rural women.
  - (6) Irrigation schemes.
  - (7) Credit schemes for NRSE to enable women to buy the technologies.

In the discussions which followed it was pointed out that women's group placed greater importance on development of human resources, especially training, while men's group gave greater emphasis on the technical issues and their implementation.

It was underscored that women have fewer educational and training opportunities especially in scientific fields. Moreover, the scheme drop-out rate is higher among girls than boys at all levels.

**Module V: "Education and Training Activities in NRSE Projects"** by the Hon. G. Mongella.

She said that NRSE are not common public knowledge, especially for women, nor in the use of such technologies known to everybody. The only way to make achieve these goals is through education of producers, users, planners and decision-makers. Module V has been formulated to meet this goal. Ms G. Mongella pointed out that the following issues have been covered in the Module.

**Systematic training in 10 steps:**

1. Identification of training needs and priorities
2. Examination of occupation chosen as a priority
3. Analysis of occupation
4. Specification, selection and appraisal of trainees.
5. Establishment of training objectives
6. Drawing up of a syllabus
7. Planning of training programme
8. Implementation of training programme
9. Checking of training
10. Follow-up

She noted that the module clearly spells out the teaching aids and methods for either trainers or trainee to be used for different topics and objectives. She further pointed out that the teaching aids and methods are many and offer a wide range of choice for different situations, through the following channel: (a) formal educations; (b) on-the-job training; and (c) non-formal education such as adult training classes. She stressed that women could be trained as trainees and trainers.

She then added that in her opinion songs, proverbs and stories are some of the ways of effective teaching methods which can be added to the listing in the Module. It was her opinion that the current module needs simplification and translated into Swahili to facilitate its use at the grass-roots in Tanzania with no need of highly trained people.

After presentation of Module V, an in-depth discussion focused on the role of trainer. It was emphasized that a good trainer has to possess good communication skills, as well as integrity and credibility.

It was pointed out that co-ordination and organization are one of the major obstacles in Tanzania for successful training courses.

The participants then formed into two groups by gender and discussed the following issues:

1. Why is it important to have women trainers for NRSE projects?
2. Which constraints prevent participation of women in training programmes for NRSE projects?
3. How would you incorporate specially designed courses for women and NRSE activities into existing training programmes?
4. What are the main steps in the management of a training component of an energy project? Indicate women's role at each step.

The reports are as follows

#### Report of Women's group

1. Importance of having women as trainers for NRSE projects:
  - Due to social attitudes women can communicate to their fellow women easier than men.
  - It is a source of employment for women
  - Women are the main users of NRSE.
2. Constraints:
  - Heavy workload i.e. child bearing responsibility, attitude of spouse.
  - Lack of confidence and exposure which is caused by lack of education.
  - When a new technology is introduced men are considered first.
  - Bureaucracy and redtape in the selection of right candidates to attend the course.
  - Invisible statistics on women in the Ministry of Manpower in planning and implementation.
  - Training duration and location taking into account the responsibility of women.
  - Time to conduct course i.e. harvesting or during the night it is difficult for women to participate fully.

- Lack of facilities for women as reproducers in training institutions.
3. Incorporation of specially designed courses for women:
    - Training should start in the policy i.e. to add training needs for women in the national energy policy.
    - To run short courses on NRSE in existing institutions.
    - To have special institutions/centres to serve women in NRSE.
  4. Steps in the management of a training component of energy projects.
    - Women should participate fully in all steps in:
      - (1) Examination of occupation chosen as priority
      - (2) Analysis of the occupation
      - (3) Identification of training needs and priorities
      - (4) Specification, selection and appraisal of the people to be trained
      - (5) Setting the training objectives
      - (6) Drawing up of syllabus
      - (7) Planning of training programme.
      - (8) Implementation of training programme
      - (9) Checking of training
      - (10) Follow-up of training.

#### Report of Men's group

1. Women can communicate better than men on certain issues although gender sensitive men can be good trainers.

Women are more sensitive to energy problems

#### Recommendations:

- Women trainers preferably should be selected for the same area as the training programme location, although this depends on specific place.
2. - Cultural constraints: Women are not readily acceptable when they stand to do things.



- Lack of opportunity for advancement as they face many constraints
  - They have less exposure to technical issues (matters)
  - The general perception in many societies that energy matters should be handled by men causes most women to show little interest in such training programmes.
  - Technical matters are believed to be complicated in most cases and women are sometimes reluctant to pursue difficult quests.
  - The generally held belief that sciences are more difficult for the arts.
3. - reviewing curricula at all levels from grassroot to university level
- special emphasis to be put on curricula of institutes providing homecraft training (e.g. CD IIs and FDCs)
  - At the University, IDS should have women and NRSE in their programmes
  - These should be included in adult education programmes using village libraries as well.
  - UWT organization and mass-media (radio, magazines ets) should be used.
4. The management should involve women at all levels.

A visit was then organized for participants and observers to the Institute for Production Innovation, and applied research and development organization affiliated with the University of Dar-es-Salaam. The Institute, which has been established by means of a bilateral agreement between the Federal Republic of Germany and the Government of Tanzania, has the objectives of promoting the dissemination of existing know-how and the development of new or adapted technology with emphasis on agriculture and energy. IPI develops locally fabricated prototypes which are then passed on to industries for local production. Participants in the seminar had the opportunity during the visit of observing several NRSE prototype systems, including improved stoves, briquetters, solar water heaters and refrigerators.

Participants then visited an improved stoves factory producing several models of "Jiko" charcoal burning stoves and an innovative oven.

ANNEX I

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## ANNEX II

### PROGRAMME OF WORK

#### Monday 11 June

- 10.00 h. Opening of the Seminar
- 11.00 h. Presentation of Lecturers and Participants
- 11.30 h. Presentation of Module I  
"An Overview of the United Nations Activities in the Field of NRSE"
- 14.00 h. Presentation of National Energy Policies in the Field of NRSE
- 15.00 h. Discussion

#### Tuesday 12 June

- 9.00 h. Presentation of Module II "The Role of Women in NRSE"
- 10.00 h. Group Work
- 14.00 h. Presentation of Group Work
- 15.00 h. Presentation of Module III "Relevant NRSE Systems: Characteristics and Technology"

#### Wednesday 13 June

- 9.00 h. Group Work
- 11.30 h. Presentation of Group Work
- 14.00 h. Presentation of Module IV "NRSE Programmes and Projects: Design and Implementation"
- 15.00 h. Group Work

Thursday 14 June

- 9.00 h.      Presentation of Group Work
- 9.30 h.      Presentation of Module V  
              "Education and training Activities in NRSE Projects and  
              Programmes"
- 11.00 h.      Group Work
- 15.00 h.      Presentation of Group Work

Friday 15 June

- 11.00 h.      Presentation and Discussion of Report
- 12.00 h.      Closing of the Seminar

# **INSTRAW**



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