

**The Federal Republic of Nigeria  
Federal Ministry of Power and Steel (FMPS)  
Federal Ministry of Science and Technology (FMST)  
Energy Commission of Nigeria (ECN)  
Rural Electrification Agency (REA)**

**The Master Plan Study for Utilization of Solar Energy  
in the Federal Republic of Nigeria**

**Final Report**

**Volume 4 Gender / Human Security**

**February, 2007**

**JAPAN INTERNATIONAL COOPERATION AGENCY  
YACHIYO ENGINEERING CO., LTD.  
RECS INTERNATIONAL INC.**

**THE MASTER PLAN STUDY FOR UTILIZATION OF SOLAR ENERGY  
IN THE FEDERAL REPUBLIC OF NIGERIA**

**FINAL REPORT**

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- Volume 2 Main Report (Master Plan)
- Volume 3 Pilot Project
- Volume 4 Gender/Human Security
- Volume 5 Action Plan for Research and Development on Solar Energy
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## PREFACE

In response to a request from the Federal Republic of Nigeria, the Government of Japan decided to conduct “The Master Plan Study for utilization of solar energy in the federal republic of Nigeria” and entrusted to the study to the Japan International Cooperation Agency (JICA).

JICA dispatched the study team headed by Mr. Mitsuhsa NISHIKAWA of Yachiyo Engineering Co., Ltd. and organized by Yachiyo Engineering Co., Ltd. and RECS International Inc. to Nigeria six times from June 2005 to February 2007.

The study team had a series of discussions with the officials concerned of the Government of Nigeria and conducted related field surveys at the study area. Upon returning to Japan, the study team conducted further studies and compiled the final results in this report.

I hope that this report will contribute to the promotion of the plan and to the enhancement of amity between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Nigeria for their close cooperation throughout the study.

February 2007

Tadashi IZAWA  
Vice President  
Japan International Cooperation Agency

Mr. Tadashi IZAWA  
Vice President  
Japan International Cooperation Agency

## **LETTER OF TRANSMITTAL**

February 2007

Dear Sir

It is my great pleasure to submit herewith the Final Report of “The Master Plan Study for Utilization of Solar Energy in the Federal Republic of Nigeria”.

The Study Team that consists of Yachiyo Engineering Co., Ltd. and RECS International Inc. conducted field surveys including pilot projects in Nigeria over the period between June, 2005 and February, 2007 according to the contract with the Japan International Cooperation Agency (JICA).

The Study Team compiled this report, which proposes Master Plan and Action Plan for PV Rural Electrification, Action Plan for Research and Development of Solar Energy Technology, Action Plan for Awareness Raising of Solar Energy, etc, through close consultations with officials concerned of the Government of the Federal Republic of Nigeria and other authorities concerned.

On behalf of the Study Team, I would like to express my sincere appreciation to officials concerned of the Government of Nigeria and other authorities concerned for their cooperation, assistance, and heartfelt hospitality extended to the Study Team.

We are also deeply grateful to the Japan International Cooperation Agency, the Ministry of Foreign Affairs, the Ministry of Economy, Trade and Industry, and the Embassy of Japan in Nigeria for their valuable suggestions and assistance during the course of the Study.

Yours faithfully,

Mitsuhisa Nishikawa  
Team Leader  
The Master Plan Study for  
Utilization of Solar Energy in the  
Federal Republic of Nigeria

# THE MASTER PLAN STUDY FOR UTILIZATION OF SOLAR ENERGY IN THE FEDERAL REPUBLIC OF NIGERIA

## FINAL REPORT (VOLUME 4 GENDER / HUMAN SECURITY)

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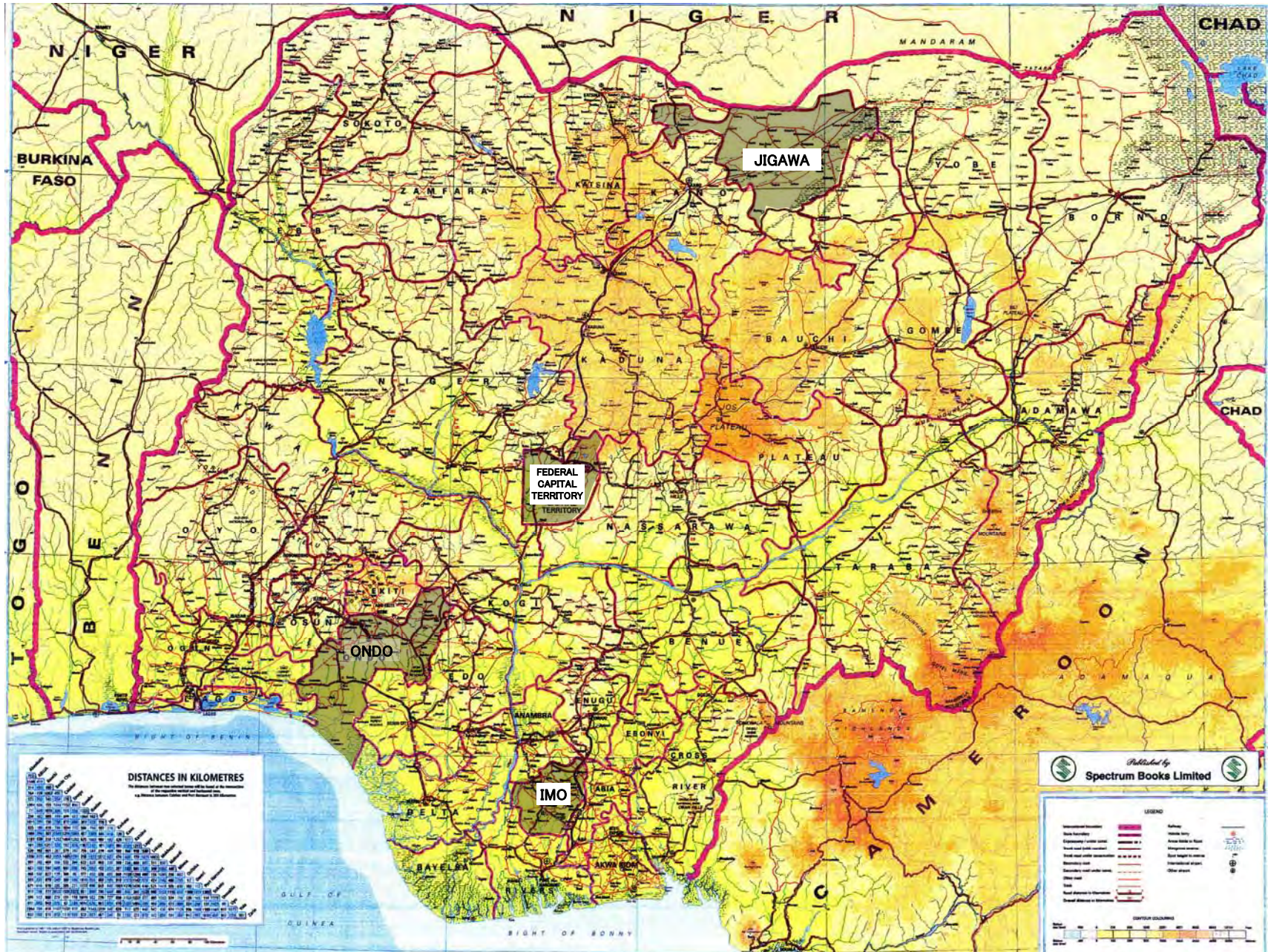
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## ABBREVIATION

CEDAW	Convention on Elimination of all forms of Discrimination Against Women
ECN	Energy Commission of Nigeria
FAO	Food and Agriculture Organization of the United Nations
FCT	Federal Capital Territory
FMOH	Federal Ministry of Health
FMPS	Federal Ministry of Power and Steel
FMST	Federal Ministry of Science and Technology
(Federal Ministry of Power and Steel (FMPS) was reorganized to Federal Ministry of Energy on January 2007)	
GAD	Gender and Development
JAEF	Jigawa Alternative Energy Fund
JICA	Japan International Cooperation Agency
NEEDS	National Economic Empowerment and Development Strategy
NPC	National Planning Commission
REA	Rural Electrification Agency
REF	Rural Electrification Fund
SELF	Solar Electric Light Fund
SHS	Solar Home System
UNDP	United Nations Development Program
UNIFEM	United Nations Development fund for Women
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
WID	Women in Development
WHO	World Health Organization



## **Chapter 1 Gender**

### **1. General**

#### **1.1 Present conditions**

Promotion of gender equality and women's empowerment is essential to facilitate human-centered and sustainable development. Promotion of gender equality and women's empowerment has been addressed through international cooperation in various fields, especially since 1970. Gender differences, or gaps in the aspects of education and health decreased, although differences exist within countries and regions in the past 20 years. Moreover, economic labor participation rate of women also rose and the role and contribution of women have become recognized.

However, despite such improvements, women are still placed in socially, politically and economically disadvantaged positions as compared to men in many areas. For example, in the aspect of education, women still have limited opportunity to receive education, and two-thirds of about 900 million illiterate people in developing countries are women<sup>1</sup>. Moreover, of 130 million children who cannot receive primary education, 60% are girls. One fourth of the women in developing countries have health problems relating to pregnancy and childbirth, and nearly 500,000 women die of childbirth every year<sup>2</sup>. In the field of economic activities, women are still placed in disadvantaged positions to men, such that they are limited in the types of occupation, promotion, and wage levels, despite their contribution to the labor force. In addition, women bear the most part of unpaid labor, such as house domestic work, food production for home consumption, childcare and nursing care, but recognition and remuneration is small. Moreover, equal rights of women and men are not legally prescribed, or even if prescribed, women's rights over property and inheritance are not equal to those of men due to customary law, as frequently seen in the land rights of women.

On the other hand, more incidences of women's human rights violation are coming to light, such as customs and traditions, such as domestic violence against women, rape, violence against women under conflict, honor crimes/killings, violence related to dowry, girl killings and sexual selection before childbirth.

In order to improve such circumstances, a comprehensive approach to eliminate gender differences in the social, political and economic spheres is necessary. Internationally, through a series of world conferences beginning with the First World Conference on Women held in

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<sup>1</sup> Source : World Education Forum(2000)

<sup>2</sup> Source : UNDP(1995)Human Development Report 'Gender and Human Development'

Mexico, 1975, the importance of gender equality and women's empowerment was emphasized. With the "Millennium Declaration 2000" adopted in the United Nations General Assembly in September 2000 as the starting point, the "Millennium Development Goals" were agreed upon. Goal number three directly addresses the promotion of gender equality and women's empowerment.

It has become increasingly important to promote women's participation in the decision-making processes, correct discriminatory systems and customs and guarantee women's right of self-determination. Integration of gender in international cooperation and development has become an issue for all development agencies to address.

## **1.2 From WID to GAD, Gender mainstreaming**

In the 1970s, the concept of "Women in Development" (WID) began to be proposed. WID began with noting the fact that economic development impact women and men differently, women do not benefit equally as men, and sometimes even receive negative impact.

However, the concept of WID at that time remained at viewing women as an object of development, carrying out projects targeting women only, separate from men. As a result, activities consisted mainly of basic literacy training, vocational training, child and maternal health services, micro credit, and small-scale income generating projects for women. Such activities were certainly useful at the community level, yet there were many cases where the burden on women was increased as a result of these activities.

Since the 1980s, NGOs of developing countries raised critical voices to such projects. That is, although they recognize the importance of such women-oriented projects, WID does not address the root causes of 'women's problems', such as unequal gender relations in society, and cannot solve their problems as long as such issues are not taken into consideration. Thus, the approach of "Gender and Development (GAD)" emerged.

WID aimed to improve development by increasing women's participation and benefits, but the GAD approach aims not only at addressing gender issues of development but also at eliminating the factors which produce gender inequality, thereby changing unequal gender relations and socio-economic structures. What is truly aimed for by the GAD approach is to change the existing division of labor between women and men, and the social, political and economic structures which place women in the subordinate positions. At the Fourth World Conference on Women held in Beijing in 1995, the term "Gender mainstreaming" was widely used.

“Gender mainstreaming” is a comprehensive strategy for promoting gender equality with GAD as its development objective. It is to incorporate the gender perspective into all policies and projects at all levels of planning and formulation of policies and projects. This approach is based on the concept that both women and men should be allowed to participate equally in all decision-making processes.

Development policies and projects that were considered gender neutral sometimes have different impacts between men and women, and therefore, it is required that to have a view of gender is indispensable in general. Energy policy is often considered as gender-neutral and is not always analyzed from a gender perspective. In reality, however, it is known that the energy policy influences women and men differently<sup>3</sup>. For example, projects for constructing large dams for hydro power, improving distribution systems for energy, expanding electric power networks, do not always consider their effects on women in low income households, and in some cases, can worsen their current situations. When forced migration occurs from large scale construction of electric power generation system, women and men are influenced differently<sup>4</sup>. Women who work mostly at home are also affected easily by environmental change because more often than not, they have the responsibility to procure household fuel. It is generally understood that PV electrification is gender neutral, and therefore, it is required that to prepare the project with a view of gender.

## **2. Gender in the Master Plan Study**

### **2.1 Gender in Nigeria**

#### **(1) Agriculture**

Women are responsible for reproduction of the labor force and the production of over 50% of the nations food supply, and undertake about 70% of the processing of agricultural product in the country. Critical agricultural resources such as land, credit and inputs (fertilizers, machineries, chemical etc) are generally exclusively in male ownership. In the mechanized and commercial agricultural sectors, farm owners discriminate against women in employment as women are considered weak, lacking in mechanical skills and unable to work at the same speed as men. Even when employed, the terms of employment especially their wages are 40% lower on the basis of a biased assessment of the pace at which women work as against that of men (UNIFEM 2001).

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<sup>3</sup> Source : SIDA Equality Prompt Sheets -Energy Policy-

<sup>4</sup> It is reported that ,for example, the Narmada Dam, India, a large project with forced resettlement of more than 100,000, compensation is not given to women’s occupation or women was not allowed to have land rights which they had had customarily.

## (2) Property and income

Although Article 43 of the Nigerian Constitution states that every Nigerian citizen has the right to acquire and own immovable property, women are discriminated and only 14 % of land is owned by women. (National Agricultural Sample Census: NASC). With little access to capital and land, it is difficult for women to obtain credit facilities, because the lack of collateral that banks require under their lending procedures. Although this problem affects both women and men, women are however doubly disadvantaged due to other barriers such as limited education, seclusion, high transactional costs and small nature of their businesses. Table 1-1 shows the access to the credit and it is found that women are especially disadvantageous in the North East and North West regions.

**Table 1-1 Access to credit (%)**

	Nigeria	Rural	Rural poor	Urban	Urban poor	North East	North West	North Central	South East	South West	South South
Male	10.1	9.6	6.6	11.2	5.5	6.3	8.2	13.9	8.3	13.9	8.9
Female	8.6	8.0	5.5	9.8	4.4	3.9	4.4	12.9	6.6	14.1	8.3

Source : National Bureau of Statistics (2006 Core Welfare Indicator Questionnaire Survey)

Table 1-2 shows the average income by gender of household head. The female-headed households get only 54~69% of average income of the one of the male-headed households.

**Table 1-2 Average household income by gender and education (1998/99)**

	(1)Male-headed [N/yr]	(2)Female-headed [N/yr]	(2)/(1) [%]	All [N/yr]
No education	3,078	2,129	69.2	2,897
Primary school	4,823	3,056	63.4	4,534
Secondary school	5,664	3,473	61.3	5,404
Post secondary school	8,219	4,473	54.4	7,757

Source : Federal Office of Statistics (Annual Abstract of Statistics, 2001 edition)

## (3) Education

Under the National Policy on Education adopted in 1981, revised in 1995 and 1998, Nigeria now has a 6-3-3-4 educational system comprising six years of primary education, three years of Junior Secondary education, three years of Senior Secondary education and four years of Higher education. The first nine years of schooling up to the end of junior secondary, now constitute the basic education component. The system also includes adult and non-formal education programs.

As for primary enrollment rate, it is 64.0% for male, and 60.4% for female, showing the gap of 3.6%. The gap between male and female is 7.2%, the largest in Urban poor, and also the same gap in North West. As for literacy rate, there is a large gap between the both genders, 73.0% for male and 55.4% for female. The gap is larger in the north three regions.

**Table 1-3 Primary enrollment rate and Adult literacy rate (%)**

		Nigeria	Rural	Rural poor	Urban	Urban poor	North East	North West	North Central	South East	South West	South South
Primary enrollment rate	M	64.0	59.3	52.9	76.7	68.2	46.5	46.7	73.4	84.1	83.9	78.1
	F	60.4	55.2	48.3	73.8	61.0	42.2	39.5	73.0	80.7	81.7	76.2
Literacy rate *	M	73.0	66.7	51.8	85.2	58.9	50.6	62.8	69.0	81.3	85.9	84.2
	F	55.4	47.3	33.8	71.9	43.2	30.4	40.9	46.1	68.8	71.3	68.4

\* by the definition of 'Adults who can read and write in any language'

Source : National Bureau of Statistics (2006 Core Welfare Indicator Questionnaire Survey)

#### (4) Health

Life expectancy at birth for low and middle-income countries is 66.1 for females and 62.1 for males. It is however, well below average in Nigeria, with 47.4 and 46.1 for women and men respectively (FOS 2000). Nigeria's low health status is attributed to poor health care delivery facilities and services, the AIDS epidemic, high level of poverty, ignorance and harmful traditional practices.

Nigeria has the second highest number of maternal deaths in the world, with a maternal mortality ratio of approximately 800 per 100,000 live births (FMOH, 2002) approximately 37,000 maternal deaths per year (WHO, 2004). Infant mortality rate stood at 100 per 1,000 live births, while the under-5 mortality rate was 201 per 1,000 live births between 1999 and 2003. The primary contributory factors to high maternal and infant mortality are: poor availability and quality of maternal and health services, uneven (especially urban/rural) and inadequate access to emergency obstetric care, lack of male involvement in reproductive health matters due to poor knowledge and cultural beliefs, high fertility, polygamy, low status of women, poverty and low literacy.

**Table 1-4 Health Status in Nigeria**

Indicator	Value	Source
Maternal mortality (rate per 100,000 live births)	800	e
Infant Mortality (rate per 1,000 live births)	100	a
Under five mortality (rate per 1,000 live births)	201	a
Life expectancy at birth (male) (years)	46.1	b
Life expectancy at birth (female) (years)	47.4	b
Contraceptive prevalence rate (%)	8	a
Unmet need for family planning (%)	17	a
Adolescent fertility (%)	22	a
Girls married before 15 years of age(%)	25	a
Crude birth rate (per 1,000 population)	41	c
Crude death rate (per 1,000 population)	13	c
Antenatal attendance (at least once) (%)	62	d
Deliveries by trained persons (%)	34	d

Source: a 2003 National Demographic Health Survey (NDHS)

b 2004 Strategic country gender assessment (SCGA)

c 2003 Population Reference Bureau  
c National HIV/AIDS and RH Survey (FMOH, 2003)  
e Federal Ministry of Health (FMOH, 2002)

**(5) Social participation**

Women's participation to the decision making positions in both public and private sectors are now in progress. Women occupy 19% of all the cabinet ministers in 2003, and a female judge was appointed in the Supreme Court in 2005. However, female members of both Senate and House of Representatives are only several percent (Table 1-5).

**Table 1-5 Distribution of Women in Elective/Appointive Positions**

Post	1999			2003			1999	2003
	Male	Female	Total	Male	Female	Total	% of Women	% of Women
President	1	0	1	1	0	1	0%	0%
Vice President	1	0	1	1	0	1	0%	0%
Senate	109	3	112	109	3	112	3%	3%
House of Representatives	360	12	372	360	21	381	3%	6%
Governors	36	0	36	36	0	36	0%	0%
Deputy Governors	36	1	37	36	2	38	3%	5%
State House of Assembly Speaker	36	1	37	36	2	38	3%	5%
State House of Assembly	990	12	1002	990	23	1013	1%	2%
Cabinet Ministers	49	4	53	34	8	42	8%	19%
Local Govt. Chairman	NA	NA	NA	774	9	783	NA	1%
Councilor	NA	NA	NA	8810	143	8953	NA	2%
Permanent Secretary	NA	NA	NA	47	13	60	NA	22%
Senior Special Assistant	NA	NA	NA	9	6	15	NA	40%
Special Assistant	NA	NA	NA	17	17	34	NA	50%
Special Adviser	NA	NA	NA	18	2	20	NA	10%

Source : 6th Periodic Report on the Implementation of the Elimination of All Forms of Discrimination Against Women (CEDAW)

**(6) Commitment to Gender issues**

Commitment to Gender issues by the Ministries are summarized as below.

**Table 1-6 Commitment to Gender issues by the Ministries**

<b>Ministry or organization</b>	<b>Policy, measures and number of staff</b>
Federal Ministry of Women Affairs	Established in 1995. The duties are women's development and protection of children. Out of all the 400 staff members, half are women. Three (3) directors are female out of five (5).
Federal Ministry of Education	They are preparing gender policy for Universal Basic Education (UBE) under the support of UNICEF.
Statistic Bureau of Nigeria	Gender and Development Unit has been working so as to include gender view in data collection since its establishment in 1995. Staff members are 6 (male 5, female 1).
National Planning Commission	There is Gender Desk with 2 staff members. A manual 'Mainstreaming Gender into States' Economic Empowerment Development Strategy' was prepared with Ministry of Women Affairs.
Federal Ministry of Power and Steel (C/P of the Study)	There is no unit and policy for gender, but employment and promotion of the staff is done according to a person's capacity and qualification, without any gender discrimination. Out of 842 staff, women occupy 35%. Women are 26% out of 130 top position staff.
Federal Ministry of Science and Technology (ditto)	There is no unit and policy for gender, but employment and promotion of the staff is done according to a person's capacity and qualification, without any gender discrimination. Out of 374 staff, women occupy 45%. There are many professional staff, though no female directors.
Energy Commission of Nigeria (ditto)	There is no unit and policy for gender, but employment and promotion of the staff is done according to a person's capacity and qualification, without any gender discrimination. Total staff number is 127 (women:13%), out of which professional staff number is 127 (women: 15%). Engineers are 23 (women:0%). Efforts to incorporate gender view were made in preparing 'The National Energy Master Plan', drafted in Sep. 2006 with participation of a member from the Ministry of Women Affairs. The Nsuka Energy Center, positioned under the ECN, has total staff of 84 (women: 27%), out of which research staff are 17 (women: 17%).
Rural Electrification Agency (ditto)	They are recruiting staff for employment of 98 starting staff members, since it was established recently. There is no gender discrimination in employment.

Source: JICA Study Team

The following issues are raised regarding the commitment of the gender issue by the Nigerian Government by an organization, Women's Rights Advancement and Protection Alternative, in their report 'Gender Mainstreaming & Future Challenges towards Gender Equality'.

- General awareness about gender issues in government agencies is high, but appreciation of the centrality of gender in development is low.
- There are trained gender desk officers and women desk officers in 16 out of the 19 government agencies in the research, but not in position of influencing policy.
- Lack of policies and frameworks for implementing gender mainstreaming in ministries and agencies
- Programmes target women but not necessarily address gender inequality
- Development partners have well articulated gender frameworks, but Nigerian government agencies could not adopt the idea.

'Empowering People' forms one chapter in NEEDS (National Economic Empowerment and Development Strategy), where empowering women is raised as one of the important issues as well as other issues such as poverty reduction, housing, employment generation, empowering youth, ensuring the welfare of the children and strengthening safety nets. The followings are the main items raised to secure the realization of empowering women.

- Ensure equitable representation of women all over the country in all aspects of national life by using affirmative action to ensure that women represent at least 30 percent of the workforce, where feasible.
- Implement the provision of the UN Convention on Elimination of all forms of Discrimination against women (CEDAW).
- Support legislation for the abolition of all forms of harmful traditional practices against women.
- Mainstream women's concerns and perspectives in all policies and programs.
- Establish scholarship schemes at the secondary and tertiary levels to expand educational opportunities for female students where necessary. Expand adult and vocational education programs that cater to women beyond formal school age.

As for CEDAW mentioned above, Nigeria is under obligation to submit periodical reports on progress recorded in the implementation of the Convention as a signatory to the Convention, and the report was prepared by the Ministry of Women Affairs in July 2006, where the progress in the field of regulations and the improvement in each state in Nigeria are described in detail.

## **2.2 Gender in the Project Area**

The factors that form gender inequality are complicated including all the structure of economy, politics, culture and others. Therefore, the present conditions of each gender, the beneficiaries' needs, effects brought by the project should be grasped at the planning stage for each gender, so that they both men and women can have fair benefit.

Official data on religion in the study areas have not been found. Religion in the three states and FCT can be summarized based on the result of the socio-economic rural survey. They are all Muslims in Jigawa. In Ondo, Christians are 60-100% in all the villages and the Muslims follow. In Imo, Christians are 95-100% and indigenous religions follow. In FCT, there are both villages where Christians are dominant, and those where Muslims are dominant.

The roles of men and women in the target villages based on the results of the socio-economic rural survey are shown in Table 1-7. It shows that men take the lead in their means of livelihood, agriculture in most villages, and women support them and are also engaged in housekeeping and side businesses. It is common in all the villages, but Jigawa is



characterized by that the women's work is limited in and around their houses, and it is considered because of their religion. It is also characteristic in Jigawa that it is men's work to fetch water and firewood, which is usually done by women. Fetching firewood is a hard work especially for women, but it was considered naturally as women's work by both men and women because it is part of housekeeping, according to the hearing in several villages.

**Table 1-7 Gender Roles in the Target Villages of Socio-economic Rural Survey**

State	Main tribe	Men's Role	Women's Role
Jigawa*	Hausa	Farming, Fetching water, Fetching firewood, Sale of farm products	Housekeeping, Child care, Processing of farm products, Sewing, Snack making, Keeping small shops, Knitting (mats, caps, etc.)
Ondo	Yoruba	Farming, Raising livestock, Fetching firewood (in a few villages), Fishery (in some villages in Ondo)	Housekeeping, Child care, Fetching water, Fetching firewood, Farming, Keeping small shops, Sale of farm products
Imo	Igbo	Farming	Housekeeping, Child care, Fetching water, Fetching firewood, Farming, Sale of farm products
FCT	Koro, Gbagyi, Gwari, Basa	Farming	Housekeeping, Child care, Fetching water, Fetching firewood, Processing of farm products, Farming (only harvest)

\*In the villages, where Kanri is the main tribe, women are engaged in farming, fetching water and firewood, etc. (in Kandil village and Jarmari village), or participate to community activities (in Marigadu village) in addition to housekeeping and child care, and it is very different from the Housa villages.

Source: JICA Study Team

### 2.3 Benefit by electrification in Pilot Project villages

Pilot projects for PV electrification were implemented in one village in three (3) states respectively as a part of the M/P Study. The installed PV system is the minimum one, and the use of electricity is limited to fluorescence lights (2 lights x 4 hrs) and a radio (1 radio x 2 hr). A mosque, clinic and meeting hall was also electrified in the three villages respectively. A hearing survey was conducted for 20 users (10 men, 10 women) in one village after 4 months from the electrification (See Appendix Questionnaire format).

#### 1) Benefit by household electrification

The item that shows a small gap between men and women is that more women raise 'no need to buy kerosene' as one of the benefit. It is probably because women are more sensitive to cost. There is no remarkable difference between genders in others. Many men raised 'easier housekeeping', and it was found that they are involved in ironing or washing by themselves.

**Table 1-8 Benefit by household electrification in the pilot project villages**

		1.Light	2.Read	3.Sew	4. Radio	5. Switch	6. Children	7. New	8. House	9. Kerosene
Male	Jigawa	45	45	42	42	45	45	35	41	37
	Ondo	50	50	50	15	50	50	42	50	46
	Imo	50	50	50	15	50	50	42	50	46
	<b>Average</b>	<b>48.3</b>	<b>48.3</b>	<b>47.3</b>	<b>24.0</b>	<b>48.3</b>	<b>48.3</b>	<b>39.7</b>	<b>47.0</b>	<b>43.0</b>
Female	Jigawa	50	50	50	49	50	50	50	50	49
	Ondo	50	50	50	18	50	50	39	50	50
	Imo	50	50	50	15	50	50	42	50	46
	<b>Average</b>	<b>50.0</b>	<b>50.0</b>	<b>50.0</b>	<b>27.3</b>	<b>50.0</b>	<b>50.0</b>	<b>43.7</b>	<b>50.0</b>	<b>48.3</b>

Remark: Figure in the table shows the total of the points (strong =5, none=1) that are put for each item by a respondent.

Items raised as one of the '7.New activities' (the figure in the parenthesis is the number of respondents)

	Jigawa	Ondo	Imo
Male	Chat/discussion(2) Animal care(1)	Play with kids (1)	Process of agricultural product (2) Discussion (1) Selling Product (1)
Female	Chat/discussion(4) Mat knitting(2)	Cooking at night (2) Starting a small business (1) Easy feeding to babies (2)	Cooking at night (1) Process of agricultural product (3) Discussion (1) More visitors' easier stay (1)

Source: JICA Study Team

Other than those, it is reported that there are restaurants that have more customers because of electrification<sup>5</sup>.

## 2) Problems by household electrification

It is found that most households have no problems regarding household electrification. The following problems are raised, but the extent of those is not serious.

**Table 1-9 Problems by household electrification in the pilot project villages**

	Jigawa	Ondo	Imo
Male	Increased expenditure(1) Increased work(1)	Increased expenditure(2) Increased work(1)	none
Femae	Increased expenditure(2)	none	Children's sitting up at night(1)

Remark: The figure in the parenthesis shows the number of respondents

Source: JICA Study Team

## 3) Desire for public facility electrification

As for the desire for public facility electrification, both men and women select a mosque/church, a clinic, and streets lights in this order as facilities they wish electrification. There is no disparity between men and women. Table 1-10 shows the public facilities desired to be electrified.

<sup>5</sup> The sales increase is from 1000N/day to 1500N/day (a restaurant in Ondo), from 3500N/day to 5000N/day (a restaurant in Imo).

**Table 1-10 Public facilities desired to be electrified**

		Mosque/ church	Clinic	Meeting Hall	School	Market	Street lights	Other
Male	Jigawa	44	34	28	45	27	40	Islamic school (3), Pump(1)
	Ondo	37	37	15	18	18	25	
	Imo	36	34	21	18	2	31	Pump(3), Village square (1)
	<b>Average</b>	<b>39.0</b>	<b>35.0</b>	<b>21.3</b>	<b>27.0</b>	<b>15.7</b>	<b>32.0</b>	
Female	Jigawa	44	41	29	43	28	42	Islamic school (1)
	Ondo	44	43	13	13	12	25	
	Imo	30	24	28	25	6	27	Pump(5), Village square (1)
	<b>Average</b>	<b>39.3</b>	<b>36.0</b>	<b>23.3</b>	<b>27.0</b>	<b>15.3</b>	<b>31.3</b>	

Remark: Figure in the table shows the total of the points (strong =5, none=1) that are put for each item by a respondent.

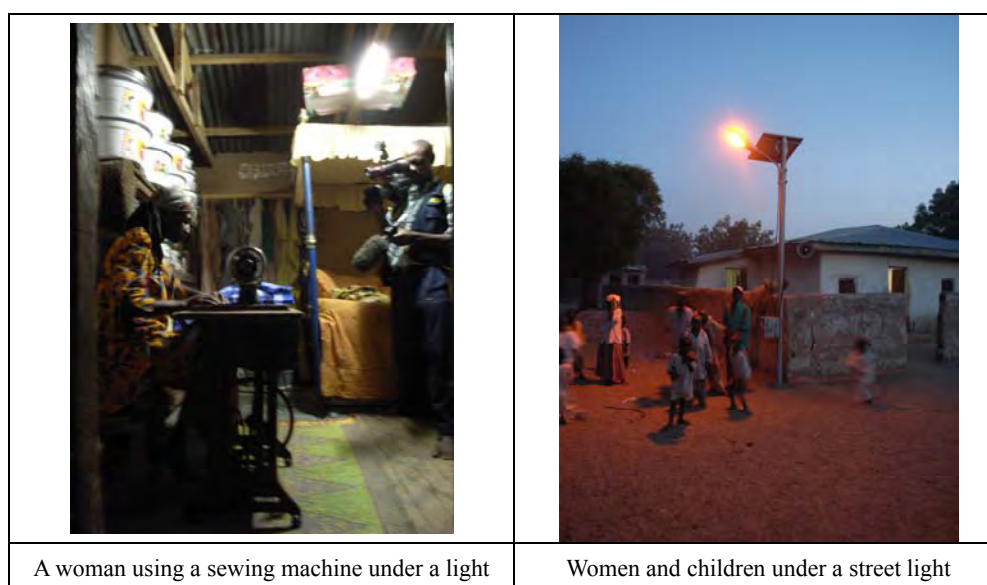
Source: JICA Study Team

#### 4) Expectation to public facility electrification

The following items are raised as the expectation to public facility electrification by both men and women. There is no disparity between men and women.

- I can pray early morning or at night (mosque /church)
- Children can do their assignments or adults can attend the night classes (school)
- We can have a meeting even at night (meeting hall).
- Children’s safety is secured, and it can prevent theft (street lights)

Women are allowed to go out only at night in Jigawa, where Islam is the main religion, therefore, going out at night is important for them. Security at night by street lights is especially meaningful for the women in Jigawa with this background.



Employment opportunities for four (4) persons were generated together with the formation of village organization for electrification, but its contribution of is not so big because the size of the population of the pilot project villages are large with 2,000-5,000.

### 3. PV electrification and Gender

#### 3.1 PV electrification and Gender in other cases

Some villages are electrified by Solar Electric Light Fund (SELF), an NGO established through support by the USAID. The benefits by the project are reported as below, and some of them are found to have contributed to women's small business.

**Table 1-11 Benefit brought by SELF Project**

Electrified item	Benefit for both men and women	Benefit for women
Street lights	<ul style="list-style-type: none"> <li>• Lights at the entrances to the village prevent outsiders though they have had trouble with them.</li> <li>• It provides a benefit to by creating night-time meeting and gathering places.</li> <li>• Many of the lights are located by water taps, where they create a safe and convenient place to get water at night.</li> </ul>	<ul style="list-style-type: none"> <li>• Women have begun to sell cooked food at night under the lights.</li> </ul>
Clinic	<ul style="list-style-type: none"> <li>• Doctor is treating more patients at night and the lights make it much easier and safer</li> <li>• Vaccines are now able to be stored longer and safer</li> </ul>	
School	<ul style="list-style-type: none"> <li>• They are utilizing the space for adult education classes and for students to come and do their assignments.</li> </ul>	
Pump	<ul style="list-style-type: none"> <li>• They can save time both in getting water source quicker and not having to stand in lines waiting.</li> </ul>	
Mosque	<ul style="list-style-type: none"> <li>• They have more opportunities to use it at night.</li> </ul>	
Barber, tailor, etc.	<ul style="list-style-type: none"> <li>• Some started new businesses with electrification.</li> </ul>	
House (SHS installed)	<ul style="list-style-type: none"> <li>• The lights are assisting many people in their home businesses.</li> </ul>	<ul style="list-style-type: none"> <li>• A woman's home business is buying sugar and salt in bulk and repackaging them in small bags for sale. Under solar lights, she does the work in a three times efficiency than before.</li> </ul>
Groundnut Oil Expeller		<ul style="list-style-type: none"> <li>• The machine is saving women a great deal of time</li> </ul>

Source: Prepared by JICA Study Team based on the Solar Electric Light Fund (SELF) 'Final Report- Village Electrification Project in Jigawa State'

Many studies on PV electrification and gender are not done at present, and the number of the documents is limited, and followings are some of those limited documents<sup>6</sup>.

Women in rural Bangladesh felt that while electricity had not brought a real reduction in their work load it had given them greater flexibility (through electric lighting) in the organization of their work patterns.

The Solar Foundation, an operating body of a PV project in Guatemala, found that mostly men attended the training sessions on equipment maintenance. As a consequence, when the PV system needed maintenance and the men were not at home, the women did not have the

<sup>6</sup> Source : Joy Clancy 'Gender Equity and Renewable Energies', February, 2004

skills or confidence to take the appropriate action, which had a negative influence on the long term durability of the system. The Solar Foundation saw much better overall system care (and hence project performance) when they took specific action to train the women in system maintenance.

On the other hand, it is reported that it is only husbands and children who enjoy reading under the lights or entertainment by the TV, and women have to burden all the increased house chores that are increased by their sitting up till late.

As for solar cookers, which belong to a different category from PV electrification, various attempts have been made to introduce them in some areas. However, there have been major problems with the acceptability of this type of cooking. The people interviewed in Kenya pointed out that it is too slow, it could not cook favorite dishes, and it could not cook enough for the whole family, and it could be easily stolen because it can be moved easily.

In Uganda, an FAO/UNDP post-harvest program recommended small-scale solar dryers for long-term storage and eventual household consumption of fruits and vegetables. However rural women's groups were more interested in solar dryers for income generation, and a company was formed in 1992 to link rural producers with a market for dried fruits in Europe. Within three years, more than 50 women's groups had taken up the solar drier technology, and in 1995 the company exported more than 50 tons of dried fruits.

### **3.2 Contribution to women's empowerment**

Empowerment is to be capable enough to participate in decision-making process and to be autonomous as an individual or social group. JICA identifies the areas of concern on gender issue (Table 1-12), and indicates women's empowerment can be attained through JICA's gender mainstreaming approach (Table 1-13) when commitment is made for the each area of concern.

**Table 1-12 Areas of concern in JICA’s Thematic Guidelines on Gender mainstreaming/WID**

Areas of concern	Examples of assistance as classified by JICA statistics
1 Poverty	Development planning, regional development planning, national and local administration, agriculture/forestry/fisheries, rural development, small and medium industry development, public utilities, infrastructure
2 Economy	Economic development planning, agricultural/forestry/fisheries industrial development, rural development, industrial development, commerce and tourism development, market economy support
3 Education	Basic education, secondary education, education infrastructure, curriculum support, vocational training, human resources development
4 Health	Health and medical administration, primary health care, public sanitation, reproductive health/rights, HIV/AIDS, sexual transmitted disease, violence against women
5 Environment	Environmental policy, forestry preservation and management, forestry, water resources development, ecological system preservation, ocean resources management, agriculture and agricultural village development, land use plan, city planning, city traffic, transportation and traffic in general, city sanitation and other public infrastructure consolidation
6 Peace construction	Reconstruction and development support, refugees support, emergency support, peace education
7 Good governance	Legal support, national and local administration and policy support, democratisation
8 Human rights	Legal literacy, legal support, violence against women, trafficking
9 Information	Information and communications technologies (ICT), information orientation support, statistics, public infrastructure

Source: JICA ‘Thematic Guideline, Gender mainstreaming and WID’ Aug. 2002

**Table 1-13 JICA’s gender mainstreaming approach**

Strategy	Type of actions
1) Policy and institutional support to promote gender equality	<ul style="list-style-type: none"> <li>▪ Establish policies, institutional systems, laws and regulations to specific gender needs.</li> <li>▪ Revise discriminatory policies, laws and regulations, for example, do not permit women’s inheritance or participation. (Includes affirmative action)</li> <li>▪ Support awareness raising of policy makers (both women and men) on gender issues.</li> <li>▪ Promote women’s participation in</li> </ul>
2) Support to promote women’s participation	<ul style="list-style-type: none"> <li>▪ Promote women’s participation in the decision-making process<sup>30</sup>.</li> <li>▪ Create an enabling environment for women, including addressing social and cultural mores, to participate in political, economic, and social activities.</li> <li>▪ Support, from a gender perspective, the development of civil societies, such as human rights and gender education and women’s NGOs in the community.</li> <li>▪ Raise the overall awareness of the community and promote social change. (e.g. placement of female teachers, physicians and counsellors, installation of sex-segregated sanitary facilities and dormitories in schools, installation of nursery schools in training centers, etc.)</li> </ul>
3) Support to women’s capacity-building	Support women’s capacity building to participate in society through providing various training opportunities such as literacy and vocational training, and improving access to such information.
4) Support to meet women’s practical needs	Address women’s practical needs, such as drinking water, medical services, economic resources, and training. It should be noted, however, that strategic needs of women should be addressed at the same time.

Source: JICA ‘Thematic Guideline, Gender mainstreaming and WID’ Aug. 2002

Electrification could help the four (4) strategies shown in Table 1-13 as shown below.

**Table 1-14 Possibility of the contribution by electrification to the four (4) strategies**

Strategy	Possibility of the contribution
1) Policy and institutional support to promote gender equality	Raising awareness of decision makers and general people by information provision through radios.
2) Support to promote women's participation	The same as above
3) Support to women's capacity building	- Effect raise by the use of lights and computers in training session - Enhancement of information access through internet
4) Support to meet women's practical needs	Use of pumps, lights and refrigerators for medicine

Source: JICA Study Team

It is anticipated that the extent of women's empowerment attainment will be raised if they are implemented together with electrification when the projects of 'areas of concern' in Table 1-12 are implemented. Considering the present conditions in Nigeria stated in the section 2.1, the following four themes are especially related with electrification, and the following way of utilizing PV electrification could help. Solar cookers/dryers are also taken into consideration, though they belong to other category.

**(1) Economic Activities**

Out of the following items, the impacts by improvement of work conditions will emerge surely, directly and in a short period. Consideration is needed for other items, on the other hand, because only labor intensification may be imposed to women without any benefit. If support is given to women who start business, comprehensive support system is needed, because women only have limited property rights or access to credit customarily and those may be their obstacles.

- 1) Their work conditions may be improved through the followings:
  - Brighter room makes women's work burden smaller by making housekeeping works easier and more efficient, and therefore, to install electric lights helps women.
  - It is recommendable to install equipments such as pumps or oil expellers that makes women's work load lighter.
  - It is recommendable to introduce solar cookers to reduce women's work load to fetch firewood (as a result, it may reduce the speed of forest degradation.).
- 2) Many women are involved in small scale businesses such as running a shop, sales of handicrafts or agricultural product sales, etc. Mobile phones are indispensable as a communication means generally in Nigeria. To diffuse the use of mobile phones may help

them to enhance business opportunities, to develop new merchandizes or others.

- 3) Women may have more business opportunities by processing of agricultural products by introducing solar power oil expeller, solar dryer, etc.

## **(2) Education**

Discrimination based on social and cultural custom and poverty are serious factors that prevent girls' education. Accordingly, the most important thing is to solve this problem, but there are some possible things to be done at present.

- 1) Electric lights will help them, because informal education such as literacy education or vocational education for women is usually held at night. Street lights are also helpful for women as they can walk safely at night to go those schools.
- 2) There are around 500 women centers, where vocational training such as sewing, knitting, catering, soap making and food processing as well as literacy class take place. Main problems for the operation of those centers are insufficient facilities/equipments, insufficient teachers, insufficient budget, lack of understanding of gender issue. It may solve one of the problems on facilities to provide lights, fans or others by electrification to women centers.

## **(3) Health and medical care**

Insufficiency and low quality of the health and medical care services are serious problem as stated in the section 2.1. The possibility of the followings exists with this background.

- 1) Providing electric lights in clinics may help as more proper and safer health/medical service and delivery are expected.
- 2) Doctors or nurses are not stationed in many village clinics, and one of the reasons is the bad working conditions there. Improving the conditions by installation of lights or refrigerators for vaccine storing may help medical staff to be stationed.
- 3) Kerosene lamps ( in addition palm oil lamps in Imo) are used as lighting in most houses in the rural area, and those are said to have negative effects on eyes and respiratory system. Women stay at home longer than men in general, and therefore, more vulnerable. Replacement of kerosene lamps by electricity lights can prevent this kind of damage.

## **(4) Information**

Various kinds of information are indispensable for women for the improvement of their ability and life quality. Women especially need information on economic activities (proper technology, marketing and employment), education (informal education), health (mother and child's health, family planning). Women usually do not read printed documents even if it is available, partly because of literacy problem, and therefore, radio is one of the most effective measures to get information. People in un-electrified villages know that they live in areas



where access to information is limited. Radios are already common in those villages, but in addition they want to get more information through television because it has impact with images.

- 1) Most people own radios and use it by dry cells. Both increase of opportunities of radio use and start of television use is expected by electrification. It can help raise awareness of both men and women by letting to know, for example, women support measures by the Ministry of Women Affairs or overseas conditions on gender issues through radio and television.
- 2) Many women are involved in professional works, and women's English literacy is high in Imo. Accordingly, if the necessary hardware including computers, and training opportunities are provided to them, women can use the internet in their daily life for their information exchange.

### **3.3 Issues to be considered**

#### **(1) From practical needs to strategic needs**

What is important to design development plan from a gender perspective is to distinguish the role of women and their two kinds of gender needs. 'Practical gender needs' are mostly related to immediate needs of living, such as water, medical services and employment. In contrast, 'Strategic gender needs' arise from the subordinated position of women, and although the concrete content differs with the life which they live, these needs are related to gender division of labor, power and control and may include legal rights, domestic violence, equal wages and women's control over their bodies. What is truly aimed for by the GAD approach is to change the existing division of labor between women and men, and the social, political and economic structures which place women in the subordinate positions, in other words, meeting their strategic gender needs (Source: JICA 'Thematic Guideline, Gender mainstreaming and WID').

On the other hand, in the thesis 'Gender Equity and Renewable Energies' mentioned above explains those needs as shown below with Productive needs between Practical needs and Strategic needs (Table 1-15).

**Table 1-15 Women’s needs and electrification**

<b>1. Practical Needs</b>	<b>2. Productive Needs</b>	<b>3. Strategic Needs</b>
<ul style="list-style-type: none"> <li>- Pumping of water supplies :reducing the need to haul carry</li> <li>- Mills for grinding</li> <li>- Lighting to improve working conditions at home</li> </ul>	<ul style="list-style-type: none"> <li>- Increase possibility of activities during evening hours</li> <li>- Provide refrigeration for food production and sale</li> <li>- Power for specialized enterprises such as hairdressing and internet cafes</li> </ul>	<ul style="list-style-type: none"> <li>- Make streets safer allowing participation in other activities (e.g. evening classes and women’s group meetings)</li> <li>- Opening horizons through radio, TV and internet</li> </ul>

Source : Clancy, Skutsch and Batchelor (2003)

The benefits raised by women in the villages are deeply related to their daily lives, and almost all are related to practical needs. Meeting women’s practical gender needs is essential in order to improve their living conditions, but in itself it will not change the prevailing disadvantaged (subordinate) position of women. It may in fact reinforce the gender division of labor. On the hand, strategic gender interests/needs are those that women find themselves in their subordinate position to men. They relate to issues of power and control, and to exploitation under the sexual division of labor. Strategic interests/needs may include changes in the traditional gender division of labor, legal rights, an end to domestic violence, equal wages. Those are not easily identified by women themselves as their practical needs; therefore, they may need specific opportunities to do so. Practical and strategic gender interests/needs should not be seen as entirely distinct and separate, but rather as a continuum. Consulting women on their practical gender needs provides entry points to address gender inequalities in the longer term so that strategic gender interests/needs can be created.

Education is one of the most important issues in gender mainstreaming, and could be positioned as one of strategic needs. Education, in particular that of women, has a larger impact on infant and child mortality than the combined effects of higher income, improved sanitation and modern-sector employment. Females with the highest levels of schooling in sub-Saharan Africa, show the lowest levels of child mortality (Source: UNFPA, ‘The State of World Population 2000’). This situation is true of the women in un-electrified villages in Nigeria, and therefore, electrification should be utilized for women’s education.

**(2) Measures taken in country level**

Measure should be taken by the federal government for the solution of the gender problems including education issues stated above, and the Federal Ministry of Woman Affairs (FMWA) is the most appropriate organization as the one who plays the main role. PV electrification may contribute to the women’s education through electrification of the

women's literacy class at night, according to the hearing from the FMWA. FMWA people are also expecting installation of street lights and electrification of women's cottage industries. They are interested in collaboration with REA for those kinds of activities.

It is necessary in a long term to increase women's participation in energy policy making in all the ministries, and it is suggested all the ministries and governmental agencies have gender desk and also increase number of male staff who can consider gender issues.

### **(3) Measures taken in community level**

There are some measures that can be taken in community level as shown below. These kinds of bottom-up activities are also indispensable, because accumulation of these activities may help to improve the situation in the country level.

- 1) Consideration should be given so that men and women can participate in decision-making process equally in planning and implementation stages of the projects that will have impacts on their own lives. It is required, for example, to include female members in it when a village organization for O&M of PV system is set up, and also in the training session for O&M skill. Two merits are expected through it. One is to raise the women's consciousness as mentioned above in the example of Guatemala. The other one is that women can contribute to improve the quality of a project by adding their own viewpoints; for example, women, who usually take children to a clinic, can be aware the needs of setting of street lights on the way to the clinic, when electrification of a clinic is going to be started. Therefore, it will make the electrification project better to include women's idea.
- 2) It is suggested that the related organizations in Nigeria utilize the existing network so as to have broad knowledge. ENERGIA is an international network on gender and sustainable energy which links individuals and groups concerned with energy, sustainable development, and gender. ENERGIA's goal is to contribute to the empowerment of rural and urban poor women through a specific focus on energy issues. Founded in 1995, ENERGIA is now active in Africa, Asia, Latin America and Oceania, as well as in Europe, North America and Australia. The main activities are i) Capacity building of the related people including decision-makers, planners, implementers and researchers, ii) Analysis including case study research, and dissemination of the materials and iii) Advocacy and advice aiming at policymakers and planners. Training tool for understanding and analysis of gender and energy issue is available through the internet. The focal points are Friends of the Environment (FOTE), an NGO based on Lagos, in Nigeria, and others in more than 10 countries in Africa such as Ghana, Senegal, etc. The state governments, local governments, NGOs and others can promote PV electrification incorporating gender through the use of the network.

**(4) Measures to reduce firewood fetching burden**

It is recognized generally that women are usually involved in fetching firewood, which is a hard work. It is confirmed in the survey that women fetch firewood usually excluding in some areas such as Jigawa. It is meaningful to reduce the burden of the work not only to solve women's health problems but also to give them possibility to share time for other creative work, study or recreation instead of fetching firewood.

It is found through the survey that kerosene is used for lighting and firewood is used for cooking. Accordingly, PV electrification cannot contribute to reduce the women's burden for firewood, but introduction of solar cookers could help. And it is desirable that cheap and practical solar cookers and dryers will be developed in Energy Research Centres in Sokoto and Nsukka. It is indispensable that the development will be promoted with participation of women, who use them in their lives referring to the example in Kenya in the section 3.1. Solar cookers have many restrictions, and the use of those will be limited to some extent and they cannot be complete alternative to firewood. However, they are considered to be worthy of efforts for improvement so as to reduce women's burden.

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## **Chapter 2 Human Security**

### **1. Introduction**

#### **1.1 Concept of human security**

Interdependence in the international community has become deeper than ever, as is highlighted by the global flows of people, goods, finance and information. Threats of conflict, terrorism, and infectious diseases (e.g. HIV/AIDS, bird flu) easily cross national borders and place people at greater risk. Yet states may not have adequate capacity to protect their peoples from these threats. To address this new and serious challenge, traditional approaches that focus on states do not suffice. This is where the concept of human security, which directly focuses on people, comes into play.

The ‘Human Development Report 1994’ by the United Nations Development Program (UNDP) was the first to mention human security publicly in the international community. At the UN Millennium Summit in 2000, Secretary-General Kofi Annan presented a report with two key words: ‘Freedom from fear, freedom from want’ stressing the need to tackle the various global threats in the coming 21<sup>st</sup> century. In response to the appeal ‘Human security’ was placed as the basic concept to strengthen the commitment to protect people from those threats.

‘Commission on Human Security’ was established to promote the concept and propose concrete action plans in 2001. Two leading figures, then UN High Commissioner for Refugees (now President of JICA), Sadako Ogata, and then Master of Trinity College, Cambridge, Amartya Sen, were appointed as co-chairs, and other ten (10) knowledgeable persons joined the Commission. The final report was submitted in May 2003 and the activities were taken over by the Advisory Board on Human Security, and then ‘Human security unit’, which was established in the UN Office for the Coordination of Humanitarian Affairs (OCHA), has been promoting the concept of human security.

‘Human Security Now’, the final report by the Commission on Human Security, define the Human Security as ‘to protect the vital core of all human lives in ways that enhance human freedoms and human fulfillment,’ and calls for a strategy of ‘protection and empowerment’ to secure people’s lives, livelihoods and dignity. The Commission arrived at policy conclusions in the following ten areas:

1. Protecting people in violent conflict
2. Protecting people from the proliferation of arms
3. Supporting the security of people on the move

4. Establishing human security transition funds for post-conflict situations
5. Encouraging fair trade and markets to benefit the extreme poor
6. Working to provide minimum living standards everywhere
7. According higher priority to ensuring universal access to basic health care
8. Developing an efficient and equitable global system for patent rights
9. Empowering all people with universal basic education
10. Clarifying the need for a global human identity while respecting the freedom of individuals to have diverse identities and affiliations

Japan's Official Development Assistance Charter was revised in 2003, which included human security in its basic politics. Japan launched Japan's Medium-Term Policy on ODA in February 2005, which defines 'Human Security' as 'the concept that aims to establish a society that puts people at the center of concerns and secures the dignity of individual lives, through strengthening local communities and empowering of people who are exposed or vulnerable to threats'.

The above policy refers conflict, terrorism, crime, human right violation, occurrence of refugees, pandemic, environmental degradation, economic crisis, disaster, etc. as 'fear', and poverty, hunger, lack of services of education and health, etc. as 'want'. The human security can be defined as 'the framework for establishment of the society where people can live with peace of mind', based on the above.

## **1.2 Human security for other donors**

### **1) United Nations**

It can be said that all the UN activities are related to human security, and especially the following organizations are playing the main roles:

- **Office for the Coordination of Humanitarian Affairs (OCHA):** The human security unit was newly established, which coordinates UN assistance in humanitarian crises that go beyond the capacity and mandate of any single agency.
- **United Nations Children's Fund (UNICEF):** Children and women constitute the majority of refugees and displaced persons. In acute emergencies, the UUNICEF works alongside other relief agencies to help re-establish basic services such as water and sanitation, set up schools, provide medicines, etc. Its programs in conflict zones include the negotiation of ceasefires.
- **United Nations Development Program (UNDP):** It is the agency responsible for coordinating activities for natural disaster mitigation, prevention and preparedness. When emergencies occur, UNDP Resident Coordinators coordinate relief and rehabilitation efforts at the national level.
- **United Nations High Commissioner for Refugees (UNHCR):** The main role is protection and assistance to refugees.

- **World Food Program(WFP):** It provides fast, efficient and self-sustaining relief to millions of people who are victims of natural or man-made disasters.
- **Food and Agriculture Organization of the United Nations (FAO):** It is the lead agency in providing early warning of impending food crises and assessing food supply problems throughout the world.

## 2) **The World Bank**

Poverty Reduction Strategy Papers (PRSPs) are one of the most tangible outcomes of the new approach to development defined in the Bank's Comprehensive Development Framework. The PRSPs are produced according to five principles, which are considered to be based on the concept of the human security.

- They are directed toward achieving results and focused on outcomes that would benefit the poor.
- They recognize that tackling poverty requires a comprehensive approach because poverty is more than just a lack of income but that poor people also suffer from a lack of opportunity, security, and voice in decisions that affect their lives.

## 3) **United States Agency for International Development (USAID)**

They work in eight (8) fields such as agriculture, education, etc. and one of them is humanitarian assistance. It includes saving lives, to alleviate human suffering, to help rural communities learn how to produce enough food to meet their own needs, and to teach these communities about nutrition and health. In addition USAID covers the field of conflict/violence management as one of the cross cutting issues.

## 4) **Canadian International Development Agency (CIDA)**

CIDA covers health, basic education, governance (policy reform, public sector reform), public sector promotion, environment, gender, etc. They are all related to human security except public sector promotion.

## 5) **Department for International Development (DFID) [United Kingdom]**

Eight (8) fields are raised as the Millennium Government Goals, and out of those seven (7) fields of poverty/hunger, education, gender, child mortality, maternal health, HIV/AIDS and other diseases, environment are deeply related with human development. The word 'human development' is not used, but the emphasis is put on this.

## 6) **GTZ [Germany]**

GTZ covers rural development, economic development and employment, environment and infrastructure, good governance, social development, etc., and most of them are related to



human security. In addition, their cross-sectoral themes are gender, crisis prevention, HIV/AIDS control, emergency aid, poverty, food and nutrition security, etc., which are all indispensable for human security.

**7) Swedish International Development Cooperation Agency (SIDA)**

SIDA has eight (8) fields to be covered, and many of them are related to human security. Those are poverty reduction, education/health, natural resources/environment, humanitarian aid, human rights and democracy. In the field of poverty reduction, for example, they aim at poverty reduction through economic growth. Therefore, their measures include infrastructure or ICT development, and it is characterized that emphasis is put on improvement of system and organizations not on construction works. Capacity development and corruption prevention is also raised as key fields.

**8) Japan International Cooperation Agency (JICA)**

Human security is an extremely important concept that will help to determine the future direction of all JICA programs. However, the introduction of this concept will not cause uniform changes across the whole of JICA's activities. It is required to carry out actions carefully and flexibly depending on the situations, for practical application of the concept of human security in development assistance. It is characteristic that the concept of human security is one of the cross-cutting issues for JICA. JICA aims at aid based on the following seven points to implement projects following the concept of human security.

- a. Reaching those in need through a people-centered approach,
- b. Empowering people as well as protecting them,
- c. Focusing on the most vulnerable people, whose survival, livelihood and dignity are at risk,
- d. Comprehensively addressing both 'freedom from want' and 'freedom from fear',
- e. Responding to people's needs by assessing and addressing threats through flexible and inter-sectoral approaches,
- f. Working with both governments and local communities to realize sustainable development and
- g. Strengthening partnership with various actors to achieve a higher impact from assistance

**2. Rural electrification and human security**

**2.1 Seven points of human security and rural electrification**

Human security has seven (7) views, and the relation between those respective views and rural electrification can be considered as follows: The views can be divided into two (2) groups. One group (Group 1, views 1, 3 and 4 are included) have the views that already conform to human security, and the other groups (Group 2, views 2, 5, 6 and 7 are included) that need consideration for human security in planning and implementation of the projects. It can be said that rural electrification contributes to the objective country's human security, if

consideration is done fully for the views of the Group 2.

**Table 2-1 Rural Electrification and Human Security**

<b>Human security perspective</b>	<b>Relation with rural electrification</b>
<b>Group 1</b>	
1 Reaching those in need through a people-centred approach	Electricity supports access to BHN such as foods, water, education and health. It also helps people to improve their life quality in terms of income and entertainment, and it can be said that people are centered.
3 Focusing on the most vulnerable people, whose survival, livelihood and dignity are at risk	Focused beneficiaries are the people living in unelectrified villages, who are the very vulnerable, and whose living conditions are at risk.
4 Comprehensively addressing both 'freedom from want' and 'freedom from fear'	Life in unelectrified villages has limited access to BHN and is full of fear such as darkness, enemies like snakes, bad effect on health, etc., and providing PV system helps people to get rid of them.
<b>Group 2</b>	
2 Empowering people as well as protecting them	Arrangement has been done so that village organizations can carry out O&M of PV system in the pilot projects, and suggestion is made for formation and capacity development of village organizations in the Study. Generally donors are required to clarify that the beneficiaries are responsible for the project, and prepare a support system for that.
5 Responding to people's needs by assessing and addressing threats through flexible and inter-sectoral approaches	The most appropriate PV system was proposed based on present electrification conditions, technology, financial analysis, desire of the residents, etc. in the Study. Generally donors are required to integrate all the expertise of policy, finance, social conditions, environment, etc.
6 Working with both governments and local communities to realize sustainable development	The M/P was prepared based on both the national electrification plan by the Federal Government, and opinions of the state/local governments and local people. Generally, donors are required to consider the projects from the viewpoints of both country level (macro) and village level (micro).
7 Strengthening partnership with various actors to achieve a higher impact from assistance	The Study was promoted with cooperation of the Federal Government, state governments, NGOs, companies, research centers and others. Generally donors are required to ask for cooperation or sharing roles to all the related organizations.

## 2.2 Human security and rural electrification in each social level and field

Expected benefit brought by PV electrification can be sorted in respective social levels and fields, and those are considered as concrete examples of human security.

**Table 2-2 Expected Benefit Brought by Rural Electrification**

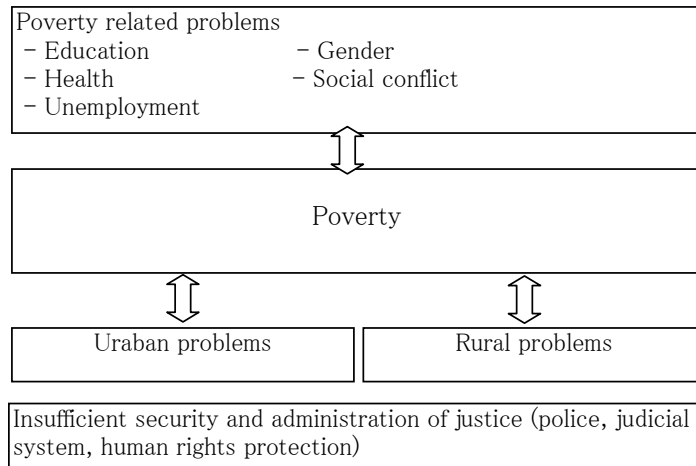
	Health, Safety and Environment	Education, Communication and Information	Economy and livelihood
Individual & household level	To make inside of house clean by removing soot and prevent fire/accidents, by replacement of kerosene lamps by electric lights	To make it possible to study at night or get information through radio at home	To provide opportunities of income generation activities (extension of business hours in stores/restaurants, income generation activities at night, etc.)
Community level	To help improve life standard through setting electric lights in public facilities, refrigeration of medicine in clinics, etc., and it can be considered as a means of social development in rural area, where progress is behind	To help night adult education improve by providing electric lights	To make economy active through adding values to farm products by processing (rice polishing, nuts drying, etc.)
National level	To secure energy source because solar power is free and infinite, and help to diversify power sources	To help to get rid of information differentials between urban area and rural area by expansion of use of radios and TVs	To have possibility to help make rural areas attractive and prevent population shift from rural areas to urban areas, though there may be many causes such as searching for job or desire for high income (There are rapid shift of the population from rural to urban areas presently. -Source: NEEDS.).
Global level	To secure security of all human by decreasing CO <sub>2</sub> emission from power generation, to prevent global warming. <sup>1)</sup>		

<sup>1)</sup> CO<sub>2</sub> Emission by Solar power generation is approx. 20g/kWh, and that by thermal power generation is approx. 200g/kWh (Source: Japan Photovoltaic Energy Association Homepage).

### 3. Human security in Nigeria

#### 3.1 Threat to human security

Serious problems such as poverty, employment, conflict and others are threat to human security in Nigeria. The main problems in Nigeria<sup>7</sup> are illustrated below.



Source: prepared by JICA Study Team based on NEEDS

**Fig. 2-1 Threat to human security in Nigeria**

#### (1) Poverty related problems

##### 1) Education

The primary enrollment rate is 64.0% for male, and 60.4% for female, and the adult literacy rate is 73.0% for male, and 55.4% for female by the definition that the ratio of persons who can write and read in any language. Both enrollment rate and literacy rate need improvement.

##### 2) Health

Only a half the population has access to safe drinking water (40% in rural areas, 80% in urban areas). More than 5 million adults were estimated to be living with HIV/AIDS, and imminent HIV/AIDS epidemic is said to be a potent time bomb waiting to explode. Among children, almost 30% were underweight under five, and 40 % have never been vaccinated.

##### 3) Unemployment

Unemployment is threatening social cohesion security and democracy. The rural unemployment rate is 12.3%, and the urban one is 7.4%.

##### 4) Gender

Partly because women have less formal education, they generally get less benefit from employment to fight poverty. Partly due to traditional property rights and inheritance

<sup>7</sup> Source : National Economic Empowerment and Development Strategy (NEEDS) 2004

practices, widows are more vulnerable to poverty than widowers. Social exclusion and discrimination against women hamper their ability to fully contribute to the development of the economy.

5) Social conflict

The occurrence of social conflicts in various localities has increased poverty, not only in areas directly affected by the conflict but also in areas affected by inflows of internally displaced people. The uncertainties associated with actual or potential conflict situations also tend to discourage domestic and foreign investments.

**(2) Poverty**

The main causes are summarized below.

1) Problems in the productive sector

The limited growth of investment and technological innovation has constrained the labor absorption capacity of the non-agricultural sector, especially manufacturing. This lack of capacity has exacerbated poverty, especially in urban areas.

2) Income distribution

Widening income inequality has contributed significantly to the increase in poverty. Economic growth has tended to benefit people who work in public sector management.

3) Weak governance

The capacity to exploit the potential of the Nigerian economy has been hampered by the costs associated with corruption. Governance problems are widely thought to have been among the major reasons why past poverty alleviation programs have had little effect.

**(3) Urban problems**

Urbanization rate is about 5.3% a year, one of the most fastest in the world. Urban unemployment and its attendant problems of slums, crime and sociopolitical tensions are high. Increase in population is putting pressure on limited resources, which face serious problems of unemployment, housing and other environment-related problems.

**(4) Rural problems**

The rural area, where 70% of Nigeria's people live, has been facing a more serious poverty situation by a variety of factors as below. And it is reported rural households spend an average of 1.5 hours a day collecting water and firewood.

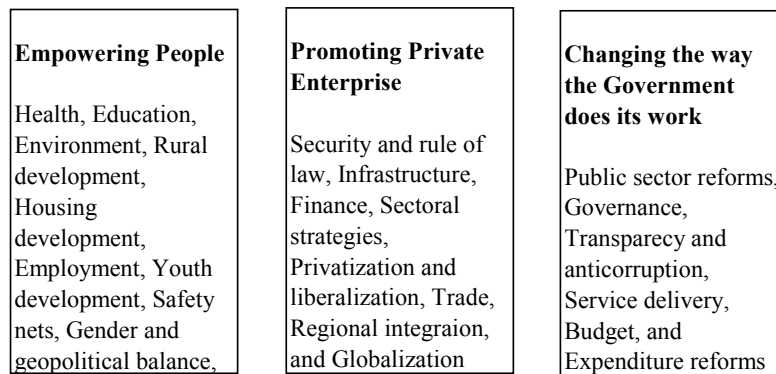
- Sharp seasonality in the flow of production, income and employment opportunities.
- Shortage of social and economic infrastructure
- Migration of the educated workforce to urban areas, and
- Low productivity of agricultural production due partly to limited access to credit, pesticides, extension services and modern technology.

**(5) Security and administration of justice**

The level of security in parts of the country has fallen, driven by growing poverty, wide income disparities, high unemployment, social dislocation caused by massive rural-urban migration, and the breakdown of societal values, leading to fraud and community unrest. The institutions established to guarantee security are incapacitated by limited personnel and skills, inadequate funding, poor equipment, and lack of proper orientation and commitment.

**3.2 Strategy of Nigerian Government**

Nigerian government has issued ‘National Economic Empowerment and Development Strategy (NEEDS)’ as a national new strategy. They already recognize the threat to human security stated in the section 3.1, and they have prepared a strategy which has three (3) pillars shown in Fig.2-2 based on their recognition.



Source: NEEDS

**Fig. 2-2 Three (3) pillars of NEEDS strategy**

**3.3 Human security in Nigeria**

Nigerian government already has considered human security in their strategy, though they do not apply the word ‘human security’. It is expected that the threat to human security will be improved in the future, but it is also anticipated that new kinds of threat to human security may occur in the future. Therefore, it is suggested Nigerian government introduce the concept of human security, analyze the present conditions and prepare future strategy from the viewpoint of human security. It will ensure human security at any time in the future.

Rural electrification is one of the activities to secure human security as stated above, and is desired by many people because it contributes much to the people. It is important to promote rural electrification as one of the activities for human security.

Reference:

- JICA homepage
- Home pages of UN, World Bank, USAID, CIDA, DFID, GTZ, SIDA
- National Economic Empowerment and Development Strategy (NEEDS) 2004