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**Integrating Gender into Planning, Management and  
Implementation of Rural Energy Technologies:  
The Perspectives of Women in Nepal**

A thesis submitted in partial fulfillment of the requirements for the degree

of Doctor of Philosophy

in Development Studies, School of People Environment and Planning  
at  
Massey University  
New Zealand.

Ishara Mahat  
2004



### SUPERVISOR'S DECLARATION

This is to certify that the research carried out for the Doctoral Thesis entitled “Integrating Gender into Planning, Management, and Implementation of Rural Energy Technologies: The Perspectives of Women in Nepal” was done by Ishara Mahat in the Institute of Development Studies, Massey University, New Zealand. The thesis material has not been used in part or in whole for any other qualification, and I confirm that the candidate has pursued the course of study in accordance with the requirements of the Massey University regulations.

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**Date:** *11/2/2004*



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**Date:** 11/02/04

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## ABSTRACT

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Women in rural Nepal are heavily involved in management of energy resources particularly biomass, which constitute the main form of rural energy as is the case in most developing countries. Women's most time consuming activities in rural areas of Nepal are cooking, collecting firewood, and processing grain, all of which are directly associated with the rural energy system. Despite women's strategic interests in improved rural energy in Nepal, energy planners (normally male) rarely consider women's roles, needs, and priorities when planning any interventions on rural energy.

This study targeted at rural women in the mid hill region of Nepal, has examined the socio-economic implications of alternative energy technologies (AETs) especially in terms of saving women's labor and time and increasing opportunities for them to participate in social and economic activities. The analysis indicates that there is a positive implication of AETs on women's workload especially with access to the micro hydro mills available in the villages. In general, women have been able to save their labor and time in collecting firewood, and milling activities, although this is not always apparent due to women using the saved time for other household chores. However, AETs were rarely used for promoting end use activities (such as, energy based small cottage industries) in order to enhance women's socio-economic status. In addition, AETs had rather limited coverage and were not able to fulfill the energy demands of all rural households. There were also limitations in the adoption of such technologies mainly due to financial, technical, and social problems. For instance, the solar photovoltaic system and biogas plants were still costly for the poorest households even with subsidies. Consequently, socio-economic gaps within small communities widened and became highly visible with access to such technologies.

Women's participation was mainly in terms of their involvement in community organizations (COs) and representation in Village Energy Committees (VECs) rather than their active participation in planning and decision-making processes with regard

to AETs. Nevertheless, women were actively involved in providing labor in construction work relating to AETs, and creating and mobilizing saving funds as a means to be involved in small income generating activities associated with AETs.

This study ultimately suggests a framework for increasing women's participation in rural energy plans and programs at local and national level, and develops policy measures to enable integration of gender into energy planning and policies. This would help to address practical and strategic gender needs in terms of fulfilling basic energy needs managed by women, and providing them with opportunities to be involved in some social and economic activities, which lead towards the self-enhancement of women.

***Key words:* Rural energy planning, practical and strategic gender needs, participation and empowerment.**

*In memory of my grandmother "AMA"  
Who always wanted to see me succeed,  
You would be thrilled to see me now,  
But, your spirit will continue in me forever!!*

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## LIST OF ACRONYMS AND ABBREVIATIONS

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ADB	Asian Development Bank
ADB/N	Agricultural Development Bank/Nepal
AEPC	Alternative Energy Promotion Center
AET	Alternative Energy Technology
AIT	Asian Institute of Technology, Bangkok
BSP	Biogas Support Program
CADC	Community Awareness Development Center
CBO	Community Based Organization
CEPRAD	Center for Environment and Agricultural Policy Research
CES	Center for Energy Studies
CO	Community Organization
CRT	Center for Rural Technology
DCS	Development and Consulting Services
DDC	District Development Committee
DEC	District Energy Committee
DANIDA	Danish International Development Agency
ESAP	Energy Sector Assistance Program
FAO	Food and Agricultural Organization
FGD	Focus Group Discussion
GAM	Gender Analysis Matrix
GAF	Gender Analysis Framework
GGC	Gobar Gas Company
GO	Government Organization
HH	Household
HMG/N	His Majesty Government of Nepal
ICS	Improved Cooking Stoves
INGO	International Non-Government Organization
ITDG	Intermediate Technology Development Group

ICIMOD	International Center for Integrated Mountain Development
LPG	Liquid Petroleum Gas
MOST	Ministry of Science and Technology
MOF	Ministry of Finance
NEA	Nepal Electricity Authority
NGO	Non-Government Organization
NPC	National Planning Commission
NRA	National Research Associates
PEP	Perspective Energy Plan
PPM	Project Planning Matrix
PRA	Participatory Rural Appraisal
REDP	Rural Energy Development Program
REPPON	Renewable Energy Perspective Plan of Nepal
RONAST	Royal Nepal Academy of Science and Technology
RRA	Rapid Rural Appraisal
SFDP	Small Farmers Development Program
SEI	Stockholm Environment Institute
SPSS	Statistical Package of Social Science
SPV	Solar Photovoltaic
SNV/N	Netherlands Development Organization of Nepal
UNDP	United Nation Development Program
UNICEF	United Nation's Children's Fund
VDC	Village Development Committee
VEC	Village Energy Committee
WECS	Water and Energy Commission Secretariat
WEC	World Energy Council
WHO	World Health Organization