Role of Solar Water Pumping System in Rural Nepal:

A Case Study of Benighat VDC, Dhading

A Thesis Submitted to
The Central Department of Rural Development
Faculty of Humanities and Social Sciences for
The Partial Fulfillment of the Degree of
Masters of Arts in Rural Development

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RECOMMENDATION LETTER

This is to certify that Ms. Pramila Panta has prepared this Project Report entitled "Role of Solar Water Pumping System in Rural Nepal: A Case Study of Benighat VDC, Dhading" under my guidance and supervision in partial fulfillment for the Degree of Masters of Arts in Rural Development. I, therefore, recommend this Report to the Evaluation Committee for the final approval and acceptance.

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APPROVAL SHEET

This is to certify that the Project Report entitled "Role of Solar Water Pumping System in Rural Nepal: A Case Study of Benighat VDC, Dhading" submitted by Ms. Pramila Panta has been approved by the Department in the prescribed format of the Faculty of Humanities and Social Sciences.

Evaluation Committee

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Ms. Pramila Panta

October, 2006

Executive Summary

The study on the "Role of Solar Water Pumping System in Rural Nepal: A Case Study of Benighat VDC, Dhading" was carried out by collecting primary data from the altogether systems. The main objectives of the study were to analyze the social impact after installation of SWP system, to identify the problems of water and benefit sharing process from SWP system, to identify the operation and maintenance in system management and to recommend some suggestions for better management of SWP system. The total beneficiaries were 1405 at the time of survey where 233 households were included.

In this study, social background or characteristics and Scheme details were examined by using tabulation and figures or diagrams. All systems are installed in remote rural areas which residing in highlands also. At the time, there were seven SWP systems in different villages. Before the system installation, the people of study areas consumed one hour to more than three hours to collect per vessel water but now they get water only walking 5 to 10 minutes. For the purpose of rural drinking water in study area LSMSHG (local NGO) had played vital role to install the SWP system with better coordination where Santi Griha provided financial support and SEC installed the system. In the system installation time, all civil constructions were built under the supervision of SEC team and with the help of local users by using required goods or materials such as solar pumps, solar modules, pipes, cables, etc. After the system installation, the systems are responsible to improve their living conditions because they are using their leisure time in vegetable production and live stocking as well as other valuable fields and they are also operating Consumer Surplus Fund for peon salary, to repair the parts of the system while necessary and to use as micro credit. And they have a peon to maintain and operate the SWP system and they organized a user committee in each area for better management of the system.

After the system installation, in Irang (25hhs.), only four percent households have opened toilet and 96 percent have no toilet; in Mohariya (56hhs.), 18 percent have toilet where 50 percent have opened and 50 percent have closed; in Janagaun (55hhs), 93 percent have toilet where 65 percent have opened and 35 percent have closed; in Warbang (33hhs), all have toilet where three percent have opened and 97 percent have closed; in Dumre (14hhs), 43 percent have toilet where 33 percent have opened and 67 percent have closed; in Kotgaun

(26hhs), 96 percent have toilet where 92 percent have opened and 8 percent have closed and in Saichhap (24hhs), no one have toilet and they always go to defect in agricultural lands and forest area.

Specially altogether systems are installed for the purpose of drinking water but the users can use water for domestic animals and for kitchen garden. Before the system installation, they hardly able to grow green vegetables but till the installation date they grow seasonal vegetables for their daily uses and sometimes they sell vegetables in the market and buy the basic requirements. So, we can say that, the SWPS helps to increase the users' purchasing capacity.

Among the total population, most of the people have 5 to 20 ropanies agricultural land and most of the land was 'pakho bari' type. And out of total, 44 percent people represents to ethnicity, 31 percent represents to Dalit groups and only 25 percent represents to Brahmin/Chhetri. In altogether system areas, most of the households were engaging in goat stocking by using micro credit from consumer surplus fund. Similarly, other programs are also launched in this area like, Garib Sanga Bisheshor, Ama Samuha, etc.

In the system management, operation and maintenance is being by local user committee, for this purpose, SEC the Installer Company had provided training of general maintenance of one week to the members of user committee and each system has one peon and other necessary services are given by the site technician of SEC for all system installation. Sometimes, if any problem might be created in the system due to the natural disasters and human errors, the peon informs to site technician and he observed the sites where what is happening.

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ACRONYMS

AETs	Alternative Energy Technologies
APCTT	Asian and Pacific Centre for Transfer of Technology
ASTN	Australian Science and Technology Newsletter
CIDA	Canadian International Development Agency
CDRD	Central Department of Rural Development
CNAS	Centre for Nepal and Asian Studies
Co. Pvt. Ltd.	Company Private Limited
hhs	Households
IDRC	International Development Research Centre
LSMSHG	Local Shree Mohariya Self-Help Group
NEDO	New Energy and Industrial Technology Development Organization
NPCS	National Planning Commission and its Secretariat
PEP	Perspective Energy Plan
RCUP	Resource Conservation and Unitization Project
RECAST	Research Centre for Applied Science and Technology
RETs	Renewable Energy Technologies
RONAST	Royal Nepal Academy of Science and Technology
SEC	Solar Electricity Company
SWPS	Solar Water Pumping System
UN	United Nation
WECS	Water and Energy commission and its Secretariat
WUC	Water User Committee
m	Meter
ltr	Liter