

**An Assessment of the Role of Rainwater Harvesting
System in the Development of Hilly Rural Areas:
The Case of Chhatraganj in Arghakhanchi**

by

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**A project work submitted in partial fulfillment of the
requirements for the degree of Master of Arts in Rural
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Recommendation Letter

The project work report entitled "An Assessment of the Role of Rainwater Harvesting System in the Development of Hilly Rural Areas: The Case of Chhatraganj in Arghakhanchi," has been prepared by Mohan Panthi under my supervision. I hereby recommend that the project report, submitted in partial fulfillment of the requirements for the degree of Master of Arts in Rural Development, be examined by the project work examination committee.

Dr. Ek Raj Ojha
Research Supervisor

Approval Letter

We certify that this project work report entitled " An Assessment of the Role of Rainwater Harvesting System in the Development of Hilly Rural Areas: The Case of Chhatraganj in Arghakhanchi" submitted by Mr. Mohan Panthi in partial fulfillment of the requirements for the degree of Master of Arts in Rural Development, has been found satisfactory in scope and quality and thus hereby accepted and approved.

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Executive Summary

Rainwater harvesting is a simple, economic, and affordable process by which rainwater that collects or falls on roofs, terraces, courtyards and pavements is directed to a storage tank or well which recharges the ground water. Rainwater harvesting is a technique of water conservation and management. It helps in minimizing the problem of acute water shortage. The primary source of water is rain. The range of rainfall is important the rainwater harvesting. The technology of rain water harvesting is simple and eco-friendly, and can be done by any body with even a little capital. Rainwater harvesting ultimately helps to reduce drudgery and hardship of daily life in rural settlements and thus enhance rural development. The water harvesting system is an antique phenomenon existing since 4000-5000 years ago. In Nepal, the first modern rainwater collection system was built during the 1960s. But surface water harvesting (ponds water harvesting) was in practice since ancient times as a novel act, and for religious, livestock, rearing and domestic purposes.

The survey for the research has been done in Chhatraganja VDC of Arghakhanchi district with the purpose of examining the use of rainwater at the community level in general and to measure the impact of socio-economic benefits brought about by the system in particular. This study reviewed and analyzed the concept, evolution, practices, types, benefits and technical as well as significance of the rainwater harvesting system. A conceptual framework of the study based on the relevant literature has been prepared. The research methodology of the study is based on descriptive and explorative methods where the researcher has given keen interest in making the participants aware, co-learning and new approaches. The primary data were collected by conducting field survey using household questionnaires, which helped in quantitative and qualitative analysis. Other various techniques and tools such as key informant interviews, field visit and observation, focused group discussion (FGDs) were also employed. The collected

information was edited, coded, classified and bulleted in numerical textual paragraph for qualitative information and textual paragraph have been written for qualitative information as well. The technology of rooftop water harvesting system introduced very lately in Arghakhanchi district. RWSSP/F has supported to introduce installation of Ferro-cement jar (harvesting system) in the study area.

In Chhatraganja VDC, rainwater harvesting technology introduced in the year 2003 provided services to water scarce areas and has expanding rapidly for solving water demand. A total of four hundred cisterns made have been made in the area till date. The study area is heterogeneous in ethnicity and the main occupation of the people is agriculture. The area has water scarcity, so the installation of the rainwater cisterns has great contribution in the rural development of the area. There are different sources of water available in the study area such as well, piped water, ponds, stone spouts and streams/rivulet. Some water sources are far from settlements and it takes almost half an hour to fetch water from those sources. Each household in the area under the study travels six times a day for fetching water and requires more than 120 litres of water a day (both for human and livestock). Most of the houses have made cisterns (jars) either one (capacity 2400 lt.) or two. Water of these jars is sufficient for almost two months for a family size of 5.7. From the installation of the system, advantages of time saved, family harmony, and social inclusion have accrued. Moreover, school children and woman have also benefited. The system has also supported livestock rearing. Seeing the appropriateness and multiple advantages of the system, many of the non-user groups too are eager to install the system. The objective of the program is to fulfill water supply for drinking purpose but due to frequent pollution and rumor about the water quality, the water is being used only for no drinking purposes. So, it is most important to provide technical know-how to the users group so that the water can be used for attaining the objective of reducing the scarcity of drinking water in the area.

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Abbreviations and Acronyms

CBS	:	Central Bureau of Statistics
CDRD	:	Central Department of Rural Development
CGI	:	Corrugated Galvanized Iron
DDC	:	District Development Committee
DWSO	:	District Water Supply Office
DWSS	:	Department of Water Supply and Sanitation
FAO	:	Food and Agriculture Organization
FINNIDA	:	Finnish International Development Agency
GON	:	Government of Nepal
HKH	:	Hindu Kush-Himalayas
ICIMOD	:	International Center for Integrated Mountain Development
INGO	:	International Non-governmental Organization
NGO	:	Non-government Organization
NST	:	Nepal Standard Time
NWCF	:	National Water Conservation Foundation
NWFP	:	North-West Frontier Province, of Pakistan
RRHSs	:	Rooftop Rainwater Harvesting Systems
RHSs	:	Rainwater Harvesting Systems
RWHU	:	Rain Water Harvesting Utilization
RWSSP/F	:	Rural Water Supply and Sanitation Project/FINNIDA
TUCL	:	Tribhuvan University Central Library
UN	:	United Nations
UN-Habitat	:	United Nations Human Settlements Programme
USA	:	United States of America
VDC	:	Village Development Committee
WECS	:	Water and Energy Commission Secretariat
WHS	:	Water Harvesting System