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Impact of Water Resources Development and Irrigation on Rural Livelihood: A Case Study from Phayao Province Northern Thailand

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Abstract

In the mountainous region of Thailand, water is becoming the scarce resource and water related problems are increasing day by day as in other parts of the world. However, farmers still use the traditional water resource management which cannot cope with future organisational and managerial needs. Thus, many water-related myths and expectations in this regards need to be examined such as whether there are possibilities for better development and use of water on the family and regional levels? Evaluation is therefore needed in the context of the investigation of future strategies for better use using the potentiality of modern planning tools and management concepts. Sufficient regional studies in this regards have not yet been carried out. Therefore this research seeks to analyse water resources at the regional and family level through the use of RS/GIS and socio-economic analyses and model in order to see the development of water resources in the past and current situation and to develop future strategies.

Research is based on the methodological concept of integrating socio-economic assessment with biophysical environment. Biophysical indicators will be assessed using RS/GIS technology. Socio-economic conditions of the people will be assessed based on a survey with in-depth interviews with randomly sampled families. Then these data will be linked to the GIS by using each family's and their respective farming fields geographical positioning and further analysis will be carried out.

GPS mapping of sample farming field were carried out and they were compared with the latest quick bird satellite image over the study area. GIS databases including hydrological structures were constructed and possible location for collecting the rain water were mapped. Results from the satellite images assessment show the significant changes in the water resources development from the past to current days. Socioeconomic assessment including the characterisation of farm family, farm family level water related issues and overall living standard assessment is going on. After the farm family level assessment results will be linked to the GIS and further spatial level assessment will be carried out.

Keywords: GIS, integration, remote sensing, rural development, socio-economic situation, Thailand, water use