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Agricultural Intensification: Determinants and Impacts in the Mae Ram Watershed of Northern Thailand

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Abstract

Northern Thailand has undergone rapid agricultural transformation during the last few decades with agricultural intensification as one of the main results of this rural transformation. Farmers in this region adopt land, capital or labour intensive strategies to meet the growing needs for food and income. These intensification activities however have impacts ranging from socio-economic to environmental. The study aims to find out the main agricultural intensification strategies, their driving forces and their implications on socio-economic, environmental and conflict issues in the region.

The study was carried out in 2009 in the Mae Ram watershed located in the province of Chiang Mai in northern Thailand. Data was collected by carrying out 25 key informant interviews, 3 focus group discussions, 42 household surveys, soil and water sampling and use of Participatory Rural Appraisal methods.

The major findings from the study indicate that land, labour and capital intensification strategies are used by farmers to grow mainly vegetables for commercial purpose throughout the year. The main strategies include multiple cropping, short fallows; wide use of agro-chemicals, irrigation systems, soil conservation techniques such as terracing and intensive use of labour. The proximate driver of agricultural intensification in the region is the promotion by the Royal Project which facilitates easy access to micro-credit, inputs and market. Restriction on land expansion by national park policy and increased household size are also key drivers. The wealth status and living standard of households have generally improved after engaging in agricultural intensification but it was found to be associated with the increased frequency of erosion, flooding and siltation as well as increased soil concentration in pesticide residues in the watershed. Water availability and contamination resulting from intensification activities are the main conflict issues between the upper zone farmers and lower zone villagers in the watershed. The findings of the study suggest a need for more environmentally sustainable intensification strategies to avoid the negative impacts.

Keywords: Agricultural intensification, conflicts, determinants, impacts, Mae Ram watershed, northern Thailand, Strategies