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“Management of land use systems for enhanced food security:
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Evaluation of Sustainable Agricultural and Horticultural Land Use in in Rural Area of Northern Vietnam

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Abstract

With the growth of the population in particular in developing countries as Vietnam, a significant growth of the food demand can be observed. Therefore, the intensity of the land use and their productivity should be improved. A sustainable land use strategy needs a multicriterial evaluation of the current situation in order to develop and compare different scenarios. In northern Vietnam the province Phu Tho was studied in this regard and in particular two communities of this province, Trung Vuong with 119 and Tan Duc with 115 respondents, regarding their current land use. Three different methods for decision analysis and evaluation of the sustainability of land use were compared, the method of empirical social research, the SWOT analysis and the analytic hierarchy process (AHP). In frame of the AHP 15 sub-criteria were investigated, based on three main-criteria related to economy, ecology and social aspects. This method was applied with the stakeholders in the province as well with the land users in the community. Regarding the evaluation of the main-criteria in both groups of respondents, the same ranking was observed: first economy, then ecology and sociology. As a result of the evaluation of the sub-criteria by the land users, in the first analytical complex (main-criteria) the highest priority had ‘relation revenues/expenses’, the lowest ‘infrastructure’, whereas in the second analytical complex ‘overuse of pesticides and fertilisers’ had the highest priority, but ‘soil quality’ was not valued as problematic, in the third analytical complex highest priority for the farmer had the ‘social and medical care’ and the ‘motivation of the farmers’, as the lowest problem were valued the job opportunity.

Keywords: Analytic hierarchy process (AHP), development rural area, land use evaluation, multicriteria analyses, sustainability