Information System Better-iS

IUW - Output

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Summary:

IUW conducted together with ZALF and International Agroforestry Centre (ICRAF) a representative household survey in Tandai village located in the Morogoro region inTanzania. The objective was to identifiy local energy value chains and to assess the impacts of energy production on rural households. Special emphasis was put on wood and potential bioenergy value chains and related to this, the performance of private agroforestry and the scale of Jatropha curcas cultivation among farmers within the village. Since Jatropha trees are also used as host plants to produce black pepper and vanilla, the village is well suited to analyse the potential for upgrading the spice value chain for Jatropha oil production.

Title:

Household survey data collection in rural Tanzania

Problem and Objective:

This study has been conducted in Tandai village located in the Uluguru Mountains part of the Eastern Arc Mountains in Tanzania. The northern study area borders the protected natural forest reserve and an unprotected community forest of which the latter is nearly up to 80 percent degraded. The area is relatively densely populated and the population pressure is increasing. The possible extension of agricultural land is virtually zero due to the surrounding mountains and protected areas which altogether increase the pressure on the natural environment. The study area serves as an example of a region characterized by firewood scarcity which is one important component for rural livelihoods. At present, firewood is the major energy source besides charcoal and crop residues as a minor for cooking. Jatropha curcas – controversially debated as a potential energy plant – is currently cultivated as a host plant for black pepper cultivation. The overall aim of the data collection was to assess the effects of energy production and consumption patterns on households' livelihoods. Traditional firewood and Jatropha curcas, a potential raw product for bioenergy production, were at the center of focus. Therefore, next to data on energy production and consumption, data on income

generation, expenditures, households' problems with environmental degradation and their time preferences were collected.

Method:

The study area was selected in collaboration with experts and key-informants from the local Sokoine University of Agriculture (SUA) of Morogoro and ICRAF. The accessibility and logistic feasibility of the study area were considered in the selection process. For the survey, the households were then randomly chosen based on household lists provided by the sub-village heads. The survey village consists of seven subvillages. In each, 30 percent of the households were interviewed, resulting in a sample of 314 households.

Further, a food monitoring was conducted. 15 households who also participated in the survey were asked to fill a form listing all food items (product, quantity, price) which they either bought from the market or collected from their own home gardens. The household filled the form on a daily basis for a three week period. The food monitoring was supported and supervised from the extension officer.

To obtain some qualitative information, focus groups discussions, attendant workshops and expert interviews were conducted. The workshops dealt with topics on e.g. current environmental and social problems in the village, the meaning of sustainability to the villagers, the mapping of the most important value chains (banana, pineapple, cassava, and firewood), as well as the current situation of Jatropha production. To assess the future evaluation of the households, questions concerning their time preferences were asked. These results were linked later on to their willingness to invest in agroforestry and other measures to mitigate environmental degradation which are considered as long term investments.

The triangulation strategy was then used which combines quantitivate and qualitative methods to increase the validaty of the results and to compensate for the advantages and disadvantages of individual methods.

Results:

The questionnaire for the household survey focused on different aspects of farmers' participation in the current energy value chains (firewood, charcoal, residuals, and kerosene) and cultivated crops (Jatropha, cassava, and sugarcane) for future energy production. The entire input-output relations of the surveyed households were assessed: (1) within a household as well as (2) between the households covering the whole village economy and their interactions (monetary and non-monetary). With respect to the input-output relations within a household, emphasis was put on the utilization (consumption, input use, processing, or selling) of agricultural cash and food crops including all by-products and its purpose (fertilizer, food, energy, seedlings). The same applied to energy production and consumption patterns as well as the use of forest products. The linkages between households were assessed by market participation (e.g. subsistence, weekly market, and trader). Altogether, the questionnaire aimed at assessing the questions: "Who does what with whom, in exchange for what, by what means, for what purpose with what change in the stock"

(OECD, p. 16, 2008). In order to be able to derive environmental multiplier effects, data related to soil (erosion, and quality), water usage (for agricultural production, processing and household consumption), as well as species and number of cultivated trees was taken into account. Thus, this questionnaire allows capturing the whole continuum of forest utilizations and participation in the energy value chains from wood collection (collection of dry wood, tree cutting) and the utilization for cooking, building furniture, ripening bananas or making charcoal with its direct and indirect multiplier effects on household activities.

Important to highlight is the last part of the questionnaire covering time preferences of the individual farmers, not often considered in environmental studies. The rate of time preference (RTP) is defined as the intertemporal marginal rate of substitution (Holden et al. 1998). A high rate implies that consumption now is given high value relative to consumption in the future. In this study, time preferences were measured by hypothetical questions about preferences for current versus future consumption.

Lessons learnt:

For research:

The Morogoro region in Tanzania with its academic backing is well suited for field research.

For practioners:

Food monitoring is a useful tool to assess the consumption patterns of households.

Documentation

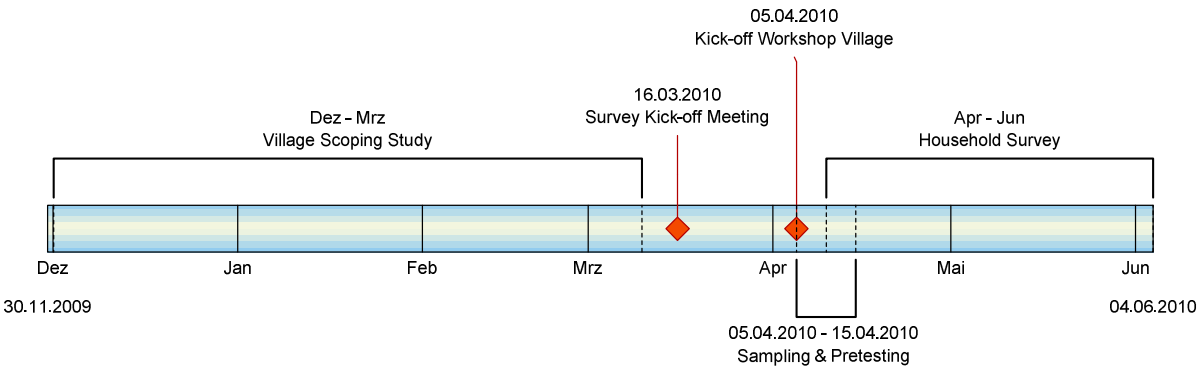

Figure 1: Timeframe of the household survey

Source: Own illustration

Policy recommendations :

The current situation of rural households bordered by protected areas represents a unique situation of analyzing livelihood strategies of households interacting with the surrounding natural environment.

Better-iS full document this output is referring to: Questionaire
http://www.better-is.com/files/FS38_IUW_Questionaire_-_Survey_Tandai.pdf

Participating institutions: International Food and Policy Research Institute (IFPRI), Institute for Environmental Economics and World Trade (IUW), World Agroforestry Centre (ICRAF), Wuppertal Institute for Climate, Environment and Energy, Leibniz-Centre for Agricultural Landscape Research (ZALF e.V.), Association for Strengthening Agricultural Research in Eastern and Central Africa. Associated partners: SOKOINE University of Agriculture, Ministry of Agriculture, Food security and Cooperatives Tanzania, Ministry of Energy and Minerals, Tanzania.