

Satellite Imagery Analyses and Household Survey on Socioeconomic, Crop Diversity and Food Security Based on Land Use Change in Battambang Province, Cambodia

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Abstract

Land use pattern in Cambodia consists of forest, grazing, shrub, urban area, and farm land. Due to the economic development and demographic pressure, the use, access and control of forest have been changed significantly. In Cambodia, land use has begun to change recently as both Cambodian and foreign investors invest in industrial agricultural crops such as palm oil, rubber, cassava, and kapok. These changes have been accompanied by expanding urban populations and the growth of huge megacities around the region, often at the expense of prime farmland. Moreover, Climate change and degradation of ecosystem services functioning may threaten the ability of current agricultural systems to keep up with demand for adequate and inexpensive food and for clean water, waste disposal and other broader ecosystem services. The objectives of the research are 1). to monitor the change in crop diversity and dry agriculture using high resolution imagery and household survey and 2). to understand the effect of small holder crop production on domestic food security and livelihood. In the research, satellite imagery will be used to monitor the intensity and the density of the crop diversity which can be done using the reflection from the red band and the infrared band. The Open Data Kit (ODK) will be used to collect the geospatial data for the research. Aside from this, the information of household survey will be carried out in some districts of Battambang Province where the major crop productions take place from year 1 to year 2. All the households in each district will be invited to participate in the research, which would introduce in a workshop promoted by the local authorities. Approximately 420 households will be surveyed. Moreover, in order to understand the effect of small holder crop production on food security and livelihood, some PRA, FGD and questionnaire survey or semi-structured interviews will be applied. Local key informants and farmers including traditional village chiefs, community leaders, and older people who could provide holistic histories of land use dynamics in the study area will be invited for the interview. Household interviews will conduct with individual farmers to collect data on how families arrange their cropping pattern across the landscape of the province, and how they collaborate with neighboring farmers and communities for allocating and zoning the land use. The expected result of the research would address the changes in agriculture and socio-economic sectors in Cambodia, especially in Battambang Province; in terms of crop production, food security, and livelihood and their interrelations.