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“Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs”

Mapping Land Cover Changes and Agricultural Transformation Processes in Cambodian Upland Regions with its Spatial Impact on Smallholder Food Production

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Abstract

Cambodian agriculture bases predominantly on rice production of small farmer communities currently employing approximately 80 % of the economically active population. Over the last 10 years, major agricultural activities in Cambodian upland have changed from mainly swidden and shifting cultivation of smallholders to large-scale economic land concessions and the restitution of already existing plantations. Substantial investments into modern agricultural production techniques as well as a conversion of subsistence farming methods into market oriented crops have been transforming the land use systems in several Eastern and North-Eastern provinces of Cambodia, namely Kampong Cham, Monduliri, Kratie, Stung Treang and Ratanakiri. Ongoing in-migration of landless farmers into these upland provinces are observable, due to rising agricultural job opportunities and fertile soil conditions, especially in basaltic areas of Kampong Cham, Monduliri and Ratanakiri. In the first years landless migrating farmers tend to become contracted by agricultural companies, while parallel they encroach open and degraded forest areas as well as unused or non-occupied land next to the concession land. Increasing regional population and primarily non-food agricultural production of rubber, cashew and cassava force the existing small-scale food production systems either to convert into intensification or to extend the cropping area, which mostly takes place.

Supported by remote sensing interpretations of Landsat TM and Spot satellite images as well as aerial photos of selected research areas, a description and detailed information and regional maps of particular land cover and land uses changes is presented. The project identifies and classifies the observable process of land use change and its particular conditions applying the up-to-date Land Cover Visualisation and Analysis Tool algorithm of the USGS.

Project results information as well as recent land cover maps and land uses advice will be offered to ongoing national and regional land use planning activities in selected provinces and districts.

The results will also be included into the agricultural extension service as supplementary information to improve regional selection of extension target areas and communes. Project findings are of significant additional interest to strategic district development issues and the commune based natural resource mapping activities (CCB-NREM) in Cambodia.

Keywords: Aerial photo interpretation, agricultural transformation processes, cambodia, land cover changes, remote sensing, South-East-Asia