

STUDYING THE DYNAMICS OF SHIFTING CULTIVATION IN KASI DISTRICT OF LAO PDR USING SATELLITE IMAGES AND SOCIO-ECONOMIC DATA

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ABSTRACT:

Shifting cultivation in Lao PDR is a common practice in upland involving more than 150,000 households, which is approximately 25% of the rural population. If all the fallow lands are accounted, then the shifting cultivation may use up to 80% of the arable land. Shifting cultivation is the traditional agricultural practice used by upland farmers in the northern part of Lao PDR primarily for rice cultivation. With the increasing population pressure, the cycles of the traditional shifting cultivation have been shortened to cause loss in soil fertility, increase in weed infestation and loss of secondary forest. As a consequence, there has been a declining yield and thereby the income of farmers. Shifting cultivation is also adversely affecting the biodiversity. Therefore, it would be very useful to identify shifting cultivation hotspots or areas where shifting cultivation has shorter cycles (2-3 years), as well as potential areas for shifting cultivation to propose for appropriate management policies.

As slash and burn is a common practice for land preparation for shifting cultivations, therefore, the detection of burned areas is very useful for identification and verification of shifting cultivation plots. Based on MODIS burned area products, annual burned areas from 2000 to 2010 were examined. Time series analysis of MODIS products was useful for identifying more frequently burned areas, which are shifting cultivation hot spots and a very good correlation was found when compared with field data.

Overlaying shifting cultivation areas on land-use map showed that shrub lands and grass lands are the major land-used for shifting cultivation covering 50% and 40% of total shifting cultivation areas respectively. Besides, socio-economic factors such as presence of certain ethnic groups, accessibility and availability of arable land were identified as the major factors contributing to shifting cultivations.