Recent Trends of Forest Development in Cambodia

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Abstract: This study aims to get historical forest change information by remote sensing for the REDD-plus (Reducing Emission from Deforestation and Forest Degradation in Developing Countries) to predict the trend of forest development.

An automatic forest observation system has been in operation in IIS, the University of Tokyo, to detect new forest developments. The system covers from Bangladesh to Vietnam in Indochina using the MODIS data obtained in Thailand. The system detected various types of forest development in this region every 10 days. It gives the coordinates of the developed area with 500m resolution and shows its location on both the Google-Earth and the original MODIS image. This system is suitable to detect unexpected forest development in this region for forest management section. It can produce a deforestation map every year combined with the high accurate forest cover map which was created by aerial photo interpretation in 2002. The ALOS PALSAR mosaic image with 50m resolution was also useful to check the forest area because of its biomass estimation capability.

We have precisely checked the deforestation area in Cambodia in last decade based on our MODIS deforestation map. Higher resolution satellite data, such as Landsat, ASTER, RapidEye and ALOS images, were introduced for that purpose. Ground check using GPS camera was also employed to identify land cover and land use changes. Then several trends of deforestation were found in Cambodia such as; patches of forest development in the whole country all the time although most of them are difficult to detect by MODIS, illegal logging in western boarder around Battambang until 2005, deforestation for large agriculture land in eastern region around Kompong Cham in 2004-2006 and forest conversions to large plantation forest around Kratie after 2009. These trends show the difficulty to predict forest development for a long period of time for the whole country because these forest developments occur in different reasons at different time. Appropriate and predictable trend information of forest development and forest degradation are still requested for the REDD effective.

Keywords: Monitoring, Forest development, Trend analysis, Forest map, MODIS