

EFFECT OF AGRICULTURAL LAND USE CHANGES IN FOOD SECURITY USING MULTI-TEMPORAL SATELLITE IMAGERY, A CASE STUDY IN MALAYSIA

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ABSTRACT: Malaysia contains numerous agricultural resources such as oil palm, rubber and rice. Malaysia is the world's largest producer of palm oil and was the leading producer of natural rubber. In addition, the most important crop in Malaysia is rice with an annual production of over two million tons in 2007. Still, Malaysia has to increase its rice production to meet the government's target for full self-sufficiency in rice by 2015. On the other hand, land cover is changing dramatically due to human activities and the impacts of global warming that is already compromising food security in many developing countries, may hinder government target. Change information for the management of natural resources may be helpful in this regard. The main objective of this research is to investigate the relation between climate change, agricultural land use changes and food security for palm oil, rubber and rice in Malaysia. For this purpose, time series Landsat TM images were acquired and the area that was covered by each product was determined using classification methods and current agricultural land use map. Then, by investigating the amount of changes in agricultural production, agricultural land use change map was produced. Finally, according to achieved results from the produced land change map, the effects of global warming on production change, and the relation between these changes and food security were evaluated.