

# **RICE CROP MAPPING USING MULTI-TEMPORAL MODIS IMAGERY IN THE NORTHERN PART OF WEST JAVA PROVINCE, INDONESIA**

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**Abstract:** Rice is the staple food in Indonesia. The information on rice crop growing areas is useful for relevant agencies to devise better strategies to ensure security and stability of national food. The main objective of this study is to map rice cropping patterns using Moderate resolution imaging spectroradiometer (MODIS) data in the northern part of West Java Province, Indonesia. This study area is one of the key rice production regions in Indonesia. It consists of nine districts, covering approximately 13,155 km<sup>2</sup> (38% of the total area of the West Java province). Based on the reference data, there are two cropping patterns in this study area, namely single-cropped rain-fed rice and double-cropped irrigated rice. The data were processed for 2011 and the methodology of this study comprises five main steps: (1) data preprocessing to construct smoothed time-series MODIS vegetation indices, including the normalized difference vegetation index (NDVI), land surface water index (LSWI), and normalized difference built-up index (NDBI), (2) data filtering using wavelet transform, (3) image masking to eliminate forest, water, and urban areas to limit our analysis to cropped areas, (4) rice crop classification using the supervised classification method, and (5) error analysis using the ground reference data and rice area statistics. The preliminary result indicates that there is a good agreement between the classification result compare with the reference data. From this study, we can see that remote sensing technology could be useful for many application study related to rice monitoring and mapping.

**KEY WORDS:** MODIS, wavelet transform, rice cropping patterns, Indonesia.