

# **Assessing the evolution of paddy cultivation in Kota Belud, Sabah using GIS and remote sensing techniques**

## **ABSTRACT**

This study aims to analyse the development of paddy cultivation in Kota Belud, Sabah using remote sensing and Geographic Information Systems (GIS) from 1990 to 2020. The cultivation of agriculture-based crops began in the early 1990s, and in 2017-2018, the Malaysian and state government identified Kota Belud as a paddy granary, making the cultivation of paddy a priority. This was in line with the National Agro-Food Policy 2021-2030, which aims to improve food security policies and reduce dependence on imports by enhancing rice production through technology reform and various initiatives. This study employed GIS and remote sensing techniques to analyse the changes in land use for paddy cultivation. Landsat TM 5 and Landsat TM 8 images were used to extract data of land use from 1990 to 2020. The results indicate that the area of paddy cultivation increased from 4,329 ha in 1990 to 12,564 ha in 2020, with fluctuations in between. The specific GIS and remote sensing techniques used in the analysis included unsupervised and supervised classification technique with accuracy classification of 94%, 86%, 98.30% and 91.60 % for year 1990, 2000, 2010 and 2010, respectively. Overall, the findings of this study can be used as a guideline by local authorities to improve rice production and food security in Malaysia.