BUILDING LAND COVER MAP FOR LAND MANAGEMENT IN KRONG BONG DISTRICT, DAK LAK PROVINCE

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SUMMARY

Over time, land cover has persistantly changed, especially under the strong impact of natural disasters, people with socio-economic development activities. Therefore studying the current state of the land cover is necessary. By integrating remote sensing and GIS, a land cover map with 6 classes was built for Krong Bong district in 2021 with overall accuracy of 75% and Kappa coefficient of 0.7. After the integration process in Krong Bong district, research indicated the main advantages and limitations, and then, some solutions have been proposed to promote the application of digital technology to improve the efficiency of land management in this area.

Keywords: Sentinel-2A, GIS, Land cover, Krong Bong district, Land management.

1. INTRODUCTION

Land cover is the physical cover observed by viewing from the ground or remote sensing satellites (FAO, 1998). Over time, land cover has persistantly changed, especially under the strong impact of natural disasters and people with socio-economic development activities. Therefore, studying the current state of the land cover is necessary to have solutions that limit the negative impacts of humans and respond to climate changes in the current context.

In recent years, the strong development of remote sensing satellites has affirmed the advantages of monitoring resources and the environment and made significant contributions to socio-economic development worldwide. Geographic information systems (GIS) and remote sensing (RS) techniques have continuously improved with increasingly sophisticated equipment systems and data quality. Therefore, the research, application and integration of RS and GIS data has been made in many fields. For example, applying RS and GIS to predict landslides (Nguyen Huu Ha et al., 2012; Vu Minh Tuan and Vu Xuan Cuong, 2013), drought monitoring (Duong Van Kham et al., 2013; Tran Thuc et al., 2013). For the land cover field, much research, such as building a map of mangrove forest status using Landsat 8 OLI images (Lam Van Tan et al., 2014); establishing land cover maps (Nguyen Thi Ngoc Quyen et al., 2016; Ho Le Thu, 2020); assessing the land use change (Dang Ngoc Quoc Hung and Ho Dac Thai Hoang, 2016). Thus, the integration of remote sensing and

GIS is an inevitable trend in resource management. Clearly, building land cover/land use change map using RS and GIS takes a shorter time and lower price than previous mapping technology.

Krong Bong is located in a remote district of Dak Lak province (Fig.1). It is far from 50km south of Buon Ma Thuot city. It has 125,695.23 hectares of natural area, but 90.74% is agricultural land (Dak Lak Department of Natural Resources and Environment, 2021). The fact is that the application of scientific and technical achievements in resource management and monitoring in the district is minimal. Therefore, the study aims to build the land cover map of Krong Bong district, Dak Lak province by integrating GIS and RS to assess the land potential to serve land management in the research area.
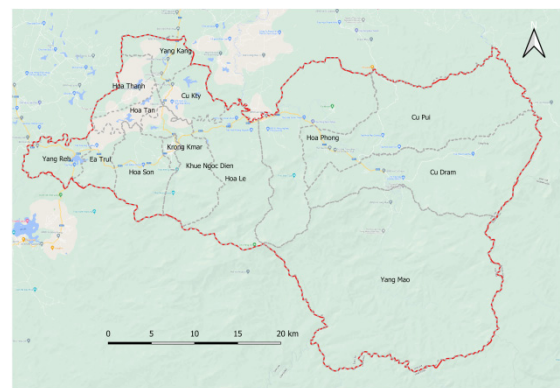

Fig.1. Krong Bong administrative boundary map

2. CONTENTS AND METHODS

2.1. Contents

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