Development of a mobile application integrating GIS to strengthen agriculture extension services: Special reference to paddy cultivation in Athuruliya Divisional Secretariat Division in Sri Lanka

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ABSTRACT

Farmers in developing countries face immense difficulties in obtaining agriculture extension services effectively and efficiently for their decision-making to achieve the highest potential yield. In this context, applications run on mobile devices offer several advantages over traditional forms of delivering extension service information efficiently. The main aim of this study was to develop a mobile app with integrating Geographic Information Systems (GIS) as a pivotal tool in enhancing agricultural extension services tailored for paddy farmers in the Athuraliya Divisional Secretariat Division (DSD).

Initially, a field survey was carried out to identify problems and challenges faced by paddy farmers through a comprehensive field survey method, ensuring that the specific information needed to be incorporated into the mobile application to optimise their paddy production. The mobile app was developed by integrating GIS using AppyBuilder software by incorporating a wealth of information pertinent to paddy cultivation. The system is connected to a centralized database which has important information for farming operations and to tackle problems faced by farmers during the paddy cultivation process. The integration of GIS technology allowed for the creation of detailed maps that are accessible to farmers via their mobile devices. It features detailed data on various paddy varieties, land preparation guidelines, pest and disease management, weather conditions etc. Additionally, the app provides contact information for extension officers and details of their programs, which are crucial for ongoing farmer support. Locations of paddy seed sale points are also mapped out, facilitating easier access for farmers. It is a user-friendly app for farmers developed using the local language.

This mobile GIS application is expected to significantly strengthen agricultural extension services in Athuraliya DSD to enhance productivity and sustainability in paddy cultivation. This study highlights the potential of mobile GIS technology to revolutionize agricultural practices and improve the livelihoods of farmers in rural communities in Sri Lanka.

Keywords: Agriculture extension, mobile applications, integration of GIS, paddy cultivation, rural communities