

ABSTRACT

Groundwater is one of the important resources to fulfill the needs of the community, both for consumption and agricultural activities. However, the process of collecting data and monitoring groundwater resources in Indonesia still faces obstacles, especially in areas with limited internet access. The Groundwater and Raw Water Information System (SIATAB) available in the form of a website has limitations in terms of usability and accessibility in the field. This final project aims to develop an Android-based SIATAB mobile application with an offline-first approach, to increase the flexibility and efficiency of the groundwater and raw water data collection process. This application allows operators to record data locally using SQLite, then synchronize automatically to the SIATAB server when an internet connection is available. Development was done using Visual Studio Code, Flutter, as well as REST API integration for data communication with the central server. The main features of the application include well data input, local storage, and data update when connected to the internet. The development process was conducted in stages through an iterative approach, allowing for continuous testing and customization of the application based on user feedback. The implementation results show that this mobile application can help overcome the limitations of using a web platform in the field and support data collection more evenly in various regions. With this application, it is expected that groundwater data collection can be carried out in a more structured and sustainable manner.

Keywords: Groundwater, Offline-first, Flutter, SQLite, SIATAB, Data collection, Data synchronization