Web farmer database
contributes to efficient project implementation in Indonesia

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In today's world, information and communications technology (ICT) is widely applied for an effective and efficient working system, and data accuracy and privacy. A database management system (DBMS) is commonly used as a professional and scalable management system. To embrace a paperless work culture as well, BRIA Indonesia has been collecting and managing data of farmers participating in the BRIA programme with the BRIA database application system to avoid data repetition and manual data entry errors since 2015.

A database is a set of data arranged to be mutually related to each other so as to facilitate users in managing it. Compared with the conventional method of administration, the database is like a collection of interconnected files, tables, or archives electronically stored, rather than kept in a cabinet with various risks of losing or corrupting data, searching difficulty, wasting time and money. The database system has overcome all that. Besides the advantage of saving paper, many other benefits of database application include (1) speed and convenience, (2) shared usage, (3) centralised data control, (4) cost saving, (5) data security, and (6) ease of improvement.
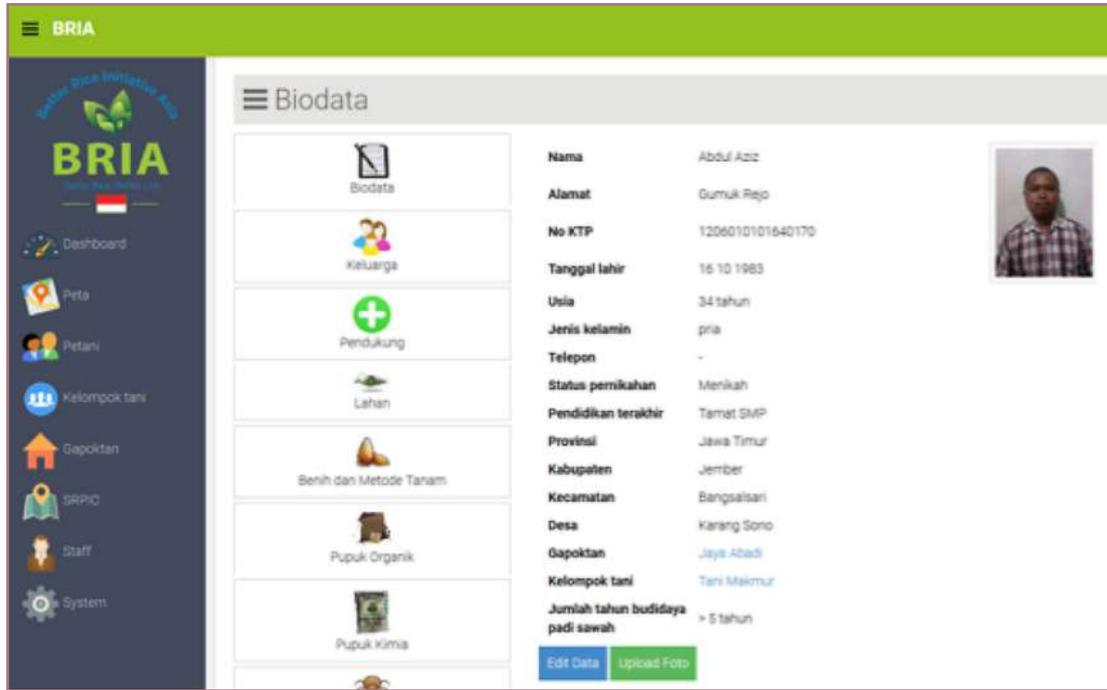
Figure 1: A screenshot of farmer's personal data

The BRIA database system has eliminated desk piles of paper and complex manual work. Before the start of Farmer Field School (FFS), a preliminary collection of basic data was required for each district. Verified by BRIA lead coordinators, the FFS basic data were entered by a responsible IT administrator into the system. That was the initial process of building up the database as well as proof of registration of every new FFS class.

Then, each farmer was asked at least 84 questions regarding his/her personal data and existing farming practices. A BRIA coordinator responsible for this data collection uses a BRIA mobile surveyor application. Each coordinator is equipped with an android tablet and a GPS to record farmers' planting sites. The prime feature of the app is the accuracy in showing geographic coordinates, an important requirement to gain access to financial services.

Farmers' data were recorded offline on the app during FFS activities. To synchronize the data collected from the field online with the system requires internet connection. Once synchronized, all farmers' data are stored in a cloud system. For data delivery, data of 5 to 10 farmers are gradually processed at a time to prevent network overload resulting in incomplete data transfer. Consequently, the IT administrator can control the data in the system and easily verify and change each farmer's data to support the field team promptly.
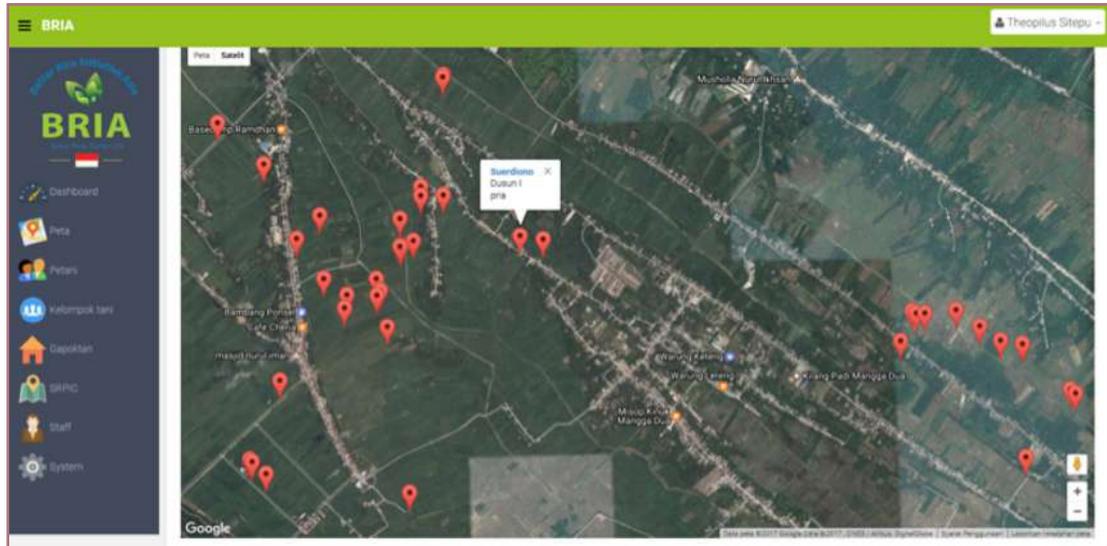
Figure 2: Farmers' rice field location is accurately identified with GPS coordinates.

An important final step was to record coordinate points of farmers' rice field which were measured separately with GPS. Once verified, the coordinate data were input by the IT administrator into the system. So, within the BRIA database system, the data input and upload process continues for thousands of BRIA farmers.

"The BRIA app has provided us with an advanced tool for data collection. We do not need to bring bags of paper around the villages, wasting our energy to write down every single detail or even rewrite it if there are mistakes. The BRIA app contains the data directly input into and retrieved from the system for conveneince and accuracy," commented Dina Arsyi Fajrin, one of BRIA field coordinators in Deli Serdang, North Sumatra, about the advantages of using the BRIA database management system.

Figure 3:
Printed materials for farmer data collection
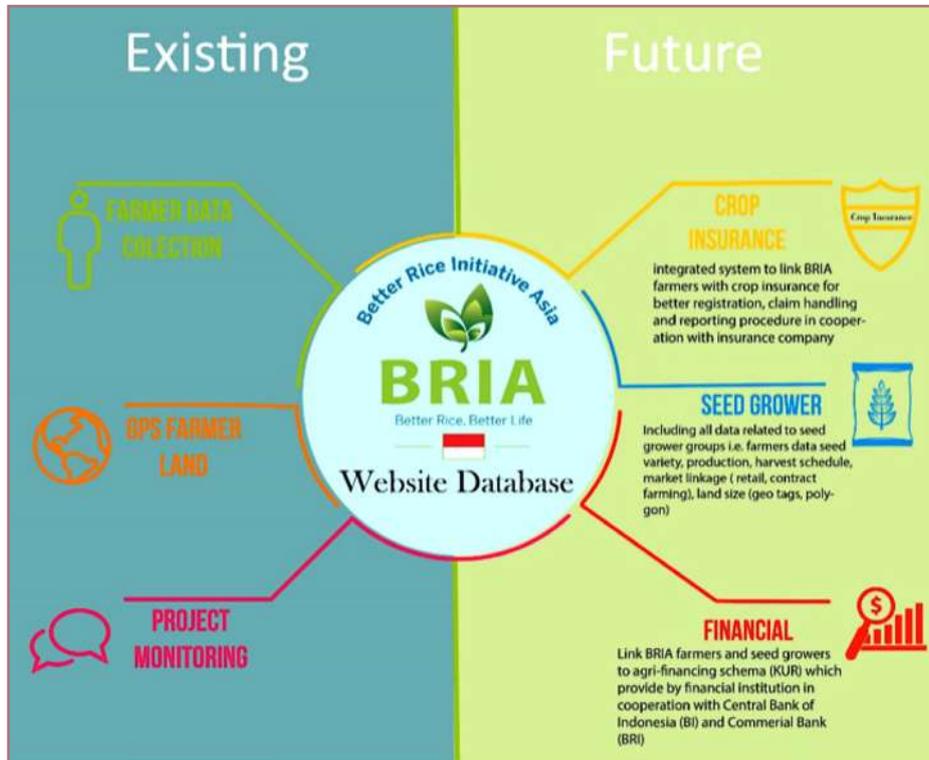in the old fashioned way

Figure 4: BRIA web database improvement in the near future

Technology is created to facilitate and simplify the work for humans. The purpose of technology is a never ending process of improvement. Therefore, the BRIA web database will continue to be improved in order to support government policies on rice sector development such as crop insurance and financing facility for the agricultural sector.

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