TRAINING ON THE USE OF AVENZA MAP FOR THE MAPPING OF RICE-FIELD IN KECAMATAN GALING KABUPATEN SAMBAS

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Abstract

The training was carried out as a community service program that aimed to increase the skills of extension workers, village officials and peasants in Galing District, Sambas District, in mapping land for rice fields using the Avenza Map application. The background to this work stems from the urgent need for accurate, real-time information on agrarian land management, which is critical to promoting food security. Analysis of the situation has shown that many of the local growers and extension workers do not yet have the necessary skills to use modern mapping technologies, which hinders the efficiency and effectiveness of land management. The problems encountered include a lack of knowledge about mapping applications, as well as limitations in the acquisition and presentation of relevant data. The program, in part, provided training involving material delivery, question and answer sessions, and the practice of using Avenza Map. The training was designed to give the competitors practical knowledge and skills, so they could create job maps, input data, and present information in a geographic information system (SIG). This conclusion indicates that the training not only improves the skill of the participants, but also raises awareness of the importance of technology in modern farming. As the result, community service programs are expected to bring about a sustainable positive impact on rice field management in Kecamatan Galing, as well as encourage active community participation in utilizing technology to improve agricultural productivity.
Keywords: Avenza Map, Rice-Field Mapping, Food Security

INTRODUCTION

The existence of real-time, fast and accurate information becomes crucial for humanity's current survival. The data and information needed should be easily accessed by various interested parties, and the development of this technology should be balanced by increasing human capital.

Increasing human resources through educational institutions, so humans develop in parallel with changing living cultures (Ramadan et al. 2022). This includes the development of information technology that has recently encroached upon various aspects of life, particularly in agriculture, to increase the effectiveness of resource management It has been shown to

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increase the effectiveness and efficiency of a number of activities (Fauzi et al. 2023). The changes that have occurred in humans and society include a variety of different ways of life (Ramadan 2021). So in order to support agricultural development, good planning is required to effectively adapt the changes. The success of agricultural activities depends heavily on proper planning, based on understanding and good skills in the collection and inventory of agricultural data, resulting in accurate and valid data. The accuracy and validity of agricultural data is important as the basis of development planning.

Agriculture is closely related to space, and the Geographic Information System (GIS) is a frequently used tool for decision-making in space-related planning. Decision makers in this field will find it easier to analyze the data using GIS. Agricultural Information Systems will be more effective if adopted in GIS (Asari et al.) 2023). The SIG-based agricultural information system will assist the Agricultural Office through the Agricultural Extension Hall (Balai Penyuluh Pertanian, BPP), in monitoring data on rice-fields ownership and their characteristics. All nations have different cultural traditions (Ramadan 2023). However, with valid and accurate rice field data available, extension workers can more easily distribute aid to farm groups, supporting the sustainability of agricultural traditions. With valid and accurate rice field data, extension agents will be easier to distribute aid, such as fertilizer or agricultural tools, to farmers' groups (poktan) in large farm groups (gapoktan). Understanding and the skill of mapping out GPS-based rice fields is mandatory for every farmer, so the validity and accuracy of rice-fields data can be accounted for.

The development of technology especially on mobile devices like smartphones has made it easier to do work in many fields. With the GPS app on our Android-based smartphones, we can use it to support our mapping app or to assist our navigation on the go. The use of Android smartphones to conduct field surveys has become common. Some mapping applications, such as CarryMap, Map Plus, Google Maps, Waze, and GPS Tracker, are examples of apps used on various platforms, including Android and iOS Apple. Each such application has its own strengths and weaknesses. Some applications excel in data retrieval but do not support basic map customization, while others are excellent in field data collection with complete basemap support, but require an internet connection. (Ismail et al. 2024), Avenza Maps - Offline Mapping, developed by Avenza Systems Inc., is one of the most interesting applications of many options. Avenza Maps is a geotagging application, also known as the PDF Maps app, equipped with GPS features or locales that can be operated through Android-based smartphones. Avenza Maps really helps improve your knowledge and skills (Farida and Mutiono 2023).

The features in this application are sufficient to meet the GPS requirements of smartphones, such as coordinate positioning, navigation features to the coordinates, trace recording, range drawing and calculation, and area-of-the-polygon calculation, as well as the addition of photo information with geotagging labels, and others. The determination of these coordinates can use either GPS or the Avenza Maps app (Farida and Mutiono 2023). The main advantage of this application is its support for PDF Geospatial file formats, which can be used as basemap or work maps, with layout created using mapping software. Avenza Maps - Offline Mapping can also work without the need for an internet network signal or other network connection (Asari et al.) 2023). Development outcomes in the agricultural sector, particularly

in food crops, have been felt by the majority of the population in West Kalimantan, particularly in the Sambas district. Food production, both in the form of rice and non-rice, needs to be increased further to strengthen food self-sufficiency (2023 Buddhism). Additionally, the increase in production aims to improve the nutritional quality of the people through the diversification of foodstuffs. The food crops sub-sector is part of the agricultural sector that includes rice cultivation (rice fields and rice fields), corn, cassava, sweet potato, peanuts, soybeans and mung bean. Increasing crop production in Sambas is still strongly influenced by the increase in harvest size. Productivity also plays a significant role in production improvements (Siregar 2023). This condition is largely influenced by natural factors and the ability of peasants to manage their agricultural enterprises. In 2022, the rice harvest reached 79.2 thousand hectares with a production of 204 thousand tons of dried unhulled rice (GKG).

The increase in rice production from 2021 to 2022 is a positive development that supported food security in Sambas District in general, and especially in Galing Sub-district. Kecamatan Galing has an area of 311.72 km² or approximately 5.16% of the total Samba District area (BPS 2023a). Based on the data from Galing Subdistrict In 2023, this kecamatan consists of 10 villages, namely Galing village, Ratu Sepudak, Sagu, Sijang, Palah river, Pandan Bay, Kuala Tempapan, Hulu Tempapan, Tri Gadu, and Tri Kembang (BPS 2023b). The village with the largest area is Tempapan Hulu Village, which covers 78.13 km² or 25.07% of Galing Sub-district, while Tri Gadu Village is the smallest with an area of 7.10 km² or 2.28% of the subdistrict area. The lack of maximally use of rice-fields in Galing sub-district has led to the loss of cultivated land if it is not properly managed and hard-data. Data collection on rice-fields is very important to maintain the existing land and also identify the potential of other land in Galing Sub-district that can be used as rice-fields. This data collection could not be done by the Agricultural Office only, but rather it needed to involve extension workers, village officials, and the farmers themselves. The ability to read a work map and fill in attribute data in Avenza Map applications is more effective when done by extension workers, village officials, or peasants who are more familiar with the area, location, and characteristics of rice fields in their area, thereby producing valid and accurate data. Data collection on rice-fields will facilitate the distribution of assistance such as fertilizer and agricultural machinery (Yasin et al. 2023), that in turn will increase the productivity of rice and support food security and self-sufficiency in Kabupaten Sambas.

On that basis, the community service team from the Social Sciences Education Department considered it important to conduct field mapping training using Avenza Map in Kecamatan Galing, Sambas regency. An understanding of the use of the Avenza Map for mapping would help extension workers, village officials, and peasants to data their rice fields, and therefore valid and accurate data could be obtained. The purpose of this training was to improve the skills of extension workers, village officials, and peasants in managing rice fields, from the preparation of workmaps, data-input using Avenza Map applications, to the presentation of data in SIG applications.

IMPLEMENTATION METHOD

The Training on the Avenza Map Use of Rice-Land Mapping in Galing Sub-district, Sambas District, which aims to help enhance the skills of extension workers, village officials and peasants in the management of rice-land starting from the preparation of the work map, data-input using Avenza Map application and the presentation of data into SIG application, took place over a day in July 2024. Resource persons at the workshop included a team of Professors in the Untan Department of Social Sciences Education, with Mr. Ludovicus Manditya Hari Christanto, S.Si., M.Sc. as a lead author in the training, assisted by students. The methods used included the delivery of materials, the question and answer sessions, and the practice of using Avenza Map in the mapping of rice fields. During the training, the methods applied were practice methods and direct participation.

The training begins with a description of the Avenza Map, usability, benefit, and the mode of use. Following this, a debriefing session and a practice session on the Avenza Map for mapping rice fields were completed and closed with reflections. This activity involves various participants and resource persons, with a main focus on the community of Galing Subdistrict, Sambas Regency. This training was held in Galing Subdistrict Hall, Sambas Regency. To achieve its objective, this training exercise is conducted with flanking to run smoothly so as an alternative problem solving is as follows: flanking is conducted with individual and classical approach. A classical approach is taken when theorizing on the scope of mapmaking and data input using map avenzas and individual approaches is carried out during mapping exercises using map avenzas on rice fields defined by group sharing and the presentation of data with SIG.

RESULTS AND DISCUSSION

Training on the Use of Avenza Map for Mapping Rice-Fields in Galing District, Sambas District, was conducted in three phases, namely the opening, the delivery of materials and field practices. In the opening phase, an acknowledgement by the Agricultural Refinery Hall coordinator, Mr. Jaka Subhan, S.ST, provided an early insight into the importance of using technology in modern farming. Data obtained from questionnaires distributed to participants showed that 85% of participants were enthusiastic about learning to use the Avenza Map app. Furthermore, during the material delivery phase, Mr. L. H. Crhistanto's Day organizer, M. Sc, detailed features of the Avenza Map application, including drawing lines, measuring distances, and creating placemarists (placemarists).

Figure 1. The opening (speech from the PKM team representative) and the Coordinator of BPP Kecamatan Galing and the delivery of material on Avenza Map

Data obtained from the question and answer session showed that 90% of the participants understood the material presented, and 75% felt that they were ready to apply their knowledge. At the stage of field practice, the teams split into groups to perform checks and map recordings according to their designated coordinate points. The results of these activities show that the participants managed to record three locations with satisfactory accuracy. The photograph together at the end of the activity shows the contestants' satisfaction and togetherness in the training that has been conducted. Analysis of the data suggests that the training improved participants' understanding of the use of Avenza Map applications. The high level of enthusiasm among the competitors can be interpreted as an indication that there is a significant need for this type of training among peasants and agricultural extension. In addition, a good understanding of the application features indicates that the method of material delivery used by a performance is effective in explaining concepts that might be new to the participant. In agricultural contexts, the ability to use digital mapping applications such as Avenza Map is very important. The application allows farmers to accurately map the land, which can aid in the planning and management of agricultural resources. As such, the results of this training not only provide new knowledge but also practical skills that can be applied directly to the field.

The result of this research is in line with findings from several previous studies which show that the use of digital mapping technology can improve efficiency and effectiveness in farm land management. For example, research by (Tulungen 2024) indicating that farmers who use digital mapping applications can optimize the use of fertilizer and water, which in turn increases yields. In addition, research by Johnson (2019) stresses the importance of training in the use of new technologies in order to ensure that peasants can harness the full potential of available tools (Yono et al. 2024). This comparison indicates that training activities conducted by PKM clubs are not only relevant but also contribute to the existing literature on the use of technology in agriculture. As such, the results of this research can be considered a valuable addition to our understanding of how technology can be applied in the local agricultural context. The implications of this finding are significant both theoretically and practically. Theoretically, the result of this research supports the argument that digital mapping technology can be an effective tool in increasing agricultural productivity. It suggests that education and training in the use of new technologies should be an integral part of agricultural development programs. In practice, the outcome of this training can be used as a basis for designing similar training programs in other regions. With the increase in understanding and skills of participants, it is

hoped that there will be an increase in better management of farmland, which could eventually contribute to improvements in crop yields and farmers' welfare. Although these results show a positive finding, there are several limitations that need to be recognized. Firstly, the number of participants involved in training is relatively small, so results may not be generalized for larger populations. Second, this study does not evaluate the long-term impact of training on competing agricultural practices. Therefore, further research is needed to explore how the knowledge and skills gained from this training are applied over a longer period of time. Overall, the Avenza Map training, which was conducted by the PKM team in Galing Sub-district, Sambas District, showed a positive result in increased participants' understanding and skills. With this training, it was hoped that participants would be able to apply the knowledge they had to improve their agrarian management. The study also contributed to the existing literature on the use of technology in agriculture, and paved the way for further research in this area. The Avenza Map is as follows:

1. Downlad of the Avenza Maps App at the Google Play Store
2. Opening the app by proceeding to the next step you just need to pan the screen to the left or press the NEXT button and then FINISH. As shown in the picture.
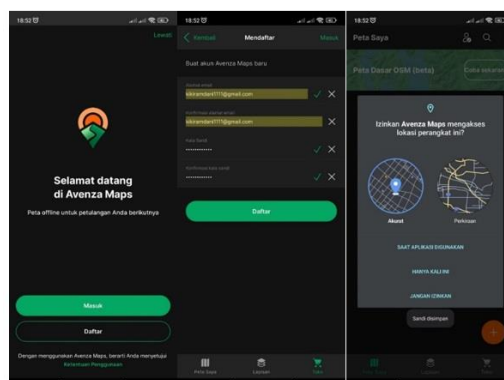

Figure 2. Avenza Maps Registration

Register by tapping the "SIGN UP" button if you are a new user or the "SIGN IN" button if you have ever created an Avenza Maps account. If you are a new user, they will be redirected to the SIGN-UP page.

3. The Avenza Map App Setting, before you run the Avenza Maps app, had to set some features on Avenza Maps.
4. Runs The Map Avenza Application. In this section, there is a layer bar, a map/Map Store store store bar, a bar to add maps, a settings bar, and other functions
5. Practice in the field accompanying by CBMS team to be directed and quick in its production.

Figure 3. the PKM team with participants socialize how to use the map avenza application and live practices on the land already provided by the committee

At this stage, teams were asked to check and record a map that had been adjusted to the pre-specified coordinates point, 3 sites were done to check the land, at the end of the PKM team's land checks and site assignment with the last photo participants who submitted a thank you for the organized PKM Program with the Avenza map training theme in Galing District, Sambas Regency.

Figure 3. Photo with PKM Attendees and Plaque Submission

CONCLUSION

The community research and service activities confirmed that training on the use of the Avenza Map application to map rice-fields in Galing Sub-district, Sambas District had achieved the desired objective. These activities not only provided new knowledge and skills for extension workers, village officials, and peasants, but also increased their awareness of the importance of technology in agricultural land management. Through training, including the delivery of materials, questions and live practices, the participants were able to understand how to use the Avenza Map application to perform accurate and efficient mapping. This is especially important given the challenges faced in managing rice fields, such as lower effective land use and the lack of valid data on land characteristics. During the course of the training, participants displayed high enthusiasm and active engagement, reflecting their need for practical knowledge in mapping. Using the Avenza Map, they were able to take GPS data, area area measurements, and location tracking more easily and quickly. The data obtained from this mapping is expected to be used in support of various agricultural programs, including distribution of fertilizer aid and agricultural tools, and better agricultural development planning in the future. Furthermore, it also emphasizes the importance of collaboration between academics, the government, and the community in addressing

agricultural problems. With support from the Faculty of Social Sciences Education Department of Untan and students, the training can run smoothly and positively for society. Therefore, it is expected that the use of the Avenza Map application can be an integral part of agricultural practices in the Galing District, which would eventually contribute to the increase of food security in Sambas Regency. It has shown that modern technological mastery in agriculture is an important step toward better and more sustainable resource management.

REFERENCES

Asari, Andi, Efa Rubawati Syaifuddin, Nurfitria Ningsi, Hana Diana Maria, Iwan Adhicandra, Rini Nuraini, Achmad Baijuri, Adie Pamungkas, Firdan Gusmara Kusumah, and Genik Puji Yuhanda. 2023. "Komunikasi Digital." Penerbit Lakeisha.

BPS. 2023a. Badan Pusat Statistik (BPS), 2023. Kecamatan Sajingan Besar Dalam Angka 2023.: BPS.

BPS. 2023b. Kabupaten Sambas Dalam Angka 2023. Badan Pusat Statistik Kabupaten Sambas: Badan Pusat Statistik.

Budhijana, Raden Bambang. 2023. "Pengaruh Unsur Institusional Terhadap Produktivitas Petani Beras Dalam Analisa Ekonomi Syariah Di Karawang Dan Indramayu." indonesia banking school.

Farida, Anif, and Mutiono Mutiono. 2023. "Pelatihan Pengambilan Data Di Lapangan Menggunakan GPS Dan Avenza Maps." AMMA: Jurnal Pengabdian Masyarakat 2 (4): 356–61.

Fauzi, Aditya Ahmad, S Kom, M Kom, S E Budi Harto, P I A Mm, M E Mulyanto, Irma Maria Dulame, Panji Pramuditha, I Gede Iwan Sudipa, and S Kom. 2023. Pemanfaatan Teknologi Informasi Di Berbagai Sektor Pada Masa Society 5.0. PT. Sonpedia Publishing Indonesia.

Ismail, Ismail, Jafar Mukhlis, Zul Asriana, Rahmiyatal Munaja, Yusrialdi Yusrialdi, Jamaluddin Jamaluddin, and Limung Limung. 2024. "Pelatihan Pemanfaatan Teknologi Aplikasi Avenza Maps Untuk Pengukuran Batas Tanah Secara Mandiri Di Desa Lapeo." BERNAS: Jurnal Pengabdian Kepada Masyarakat 5 (1): 355–60.

Mulyono, Resha Dwi Ayu Pangesti, Dien Vidia Rosa, Hery Prasetyo, and Agus Mahardiyanto. 2024. "Mentoring Smart Cultural Tourism Berbasis Potensi Lokal Menuju Kemandirian Ekonomi Di Desa Klungkung Kabupaten Jember." Warta Pengabdian 18 (1): 70–88.

Ramadhan, Iwan. 2021. "Pembangunan Pariwisata Equator Park Dan Perubahan Sosial Budaya Ekonomi Masyarakat." ETNOREFLIKA: Jurnal Sosial Dan Budaya 10 (3): 390–322. https://doi.org/10.33772/etnoreflika.v10i3.1164.

Ramadhan. 2023. "Fostering Nationalism Character and Insight Nationality in Indonesia-Malaysia Border Students Through a Culture of Local Wisdom." Jurnal Ilmiah Wahana Pendidikan 9 (10): 274–80.

Ramadhan, Iwan, Imran Imran, Izhar Salim, Stella Prancisca, Nining Ismiyani, and Edwin Mirzachaerulsyah. 2022. "Workshop Penulisan Artikel Ilmiah Untuk Dipublikasikan Pada Jurnal Ilmiah Dalam Menigkatkan Profesionalisme Guru Di Sma Negeri 2 Paloh." INTEGRITAS : Jurnal Pengabdian 6 (1): 116.

https://doi.org/10.36841/integritas.v6i1.1188.

Siregar, Muhammad Arief Rahmadsah. 2023. "Peningkatan Produktivitas Tanaman Padi Melalui Penerapan Teknologi Pertanian Terkini."

Tulungen, Franky Reintje. 2024. "Teknologi Pertanian Presisi Untuk Meningkatkan Efisiensi Produksi Padi Di Indonesia." Jurnal Cahaya Mandalika ISSN 2721-4796 (Online) 5 (2): 720–27.

Yasin, Muaidy, H Busaini, Endang Astuti, and Eka Agustiani. 2023. "Manajemen Usaha Berbasis Digital Pada UD. Arif Tani Pengecer Pupuk Bersubsidi Di Desa Kekeri Kecamatan Gunungsari Kabupaten Lombok Barat." Jurnal Pengabdian Magister Pendidikan IPA 6 (4): 1149–55.