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Socialization and Education on Utilization of UAV (Unmanned Aerial Vehicles) and Village Community Economic Empowerment Through Silvofishery in Kedai Damar Village, Serdang Bedagai, North Sumatra

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Abstract. The service team carried out was entitled "Utilization of UAV (Unmanned Aerial Vehicle) for Village Mapping and Economic Empowerment of Village Communities Through Silvofishery in Kedai Damar Village, " Serdang Bedagai, North Sumatra.PKM activities with this partnership scheme focus on the field of information technology with geospatial information systems through drones for mapping village administrative centers. Some people in Kedai Damar Village have a livelihood as casual daily laborers, farmers, and entrepreneurs. Partner problems that become priority are: (1) There is no mapping of the central area of the village administration, and (2) Lack of community knowledge of land use through silvofishery. Therefore, the solution offered is using drone technology (Unmanned Aeriel Vechiel) for mapping village administration and increasing the skills and insight of the village community by training on land use based on the silvofishery system as a solution to improving the economy of the Kedai Damar Village community. The main objective of this service is to map Kedai Damar Village's administrative center. Immigrant communities can utilize this map as a public service. Another goal is to train the community by increasing community skills through silvofishery-based land use for catfish and eel cultivation and reforestation with guava, jengkol, and petai seeds.

Keyword: Unmanned Aerial Vehicles, Silvofishery, GIS, Agroforestry

Abstrak. *Tim pengabdian yang dilakukan bertajuk "Pemanfaatan UAV (Unmanned Aerial Vehicle) Untuk Pemetaan Desa dan Pemberdayaan Ekonomi Masyarakat Desa Melalui Silvofishery di Desa Kedai Damar", Serdang Bedagai, Sumatera Utara. Kegiatan PKM dengan skema kemitraan ini fokus pada bidang teknologi informasi dengan sistem informasi geospasial melalui drone untuk pemetaan pusat pemerintahan desa. Sebagian masyarakat Desa Kedai Damar bermata pencaharian sebagai buruh harian lepas, petani, dan wiraswasta. Permasalahan mitra yang menjadi prioritas adalah: (1) Belum ada pemetaan*

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wilayah pusat pemerintahan desa, dan (2) Kurangnya pengetahuan masyarakat tentang pemanfaatan lahan melalui silvofishery. Oleh karena itu, solusi yang ditawarkan adalah penggunaan teknologi drone (Unmanned Aeriel Vechiel) untuk pemetaan pemerintahan desa dan peningkatan skill dan wawasan masyarakat desa dengan pelatihan pemanfaatan lahan berbasis sistem silvofishery sebagai solusi peningkatan perekonomian Desa Kedai Damar masyarakat. Tujuan utama pengabdian ini adalah untuk memetakan pusat pemerintahan Desa Kedai Damar. Komunitas pendatang dapat memanfaatkan peta ini sebagai layanan publik. Tujuan lainnya adalah melatih masyarakat dengan meningkatkan keterampilan masyarakat melalui pemanfaatan lahan berbasis silvofishery untuk budidaya lele dan belut serta penghijauan dengan bibit jambu biji, jengkol, dan petai.

1   Introduction

Kedai Damar Village is one of 13 villages in the Tebing Tinggi sub-district, Serdang Bedagai Regency. The village of Kedai Damar is the village that has the furthest distance from the office of the sub-district head of high cliffs [1]. This village is located in the middle of the PTPN-IV plantation area of Pabatu plantations. Therefore, many rural communities depend on PTPN-IV by opening businesses selling food and daily necessities to farmers and farm laborers [2].

Kedai Damar Village has a reasonably fertile soil condition, so it is beneficial for people's lives. This village is traversed by the Padang River, which is used for the social interests of the village community. Therefore, land use by applying the silvofishery system is excellent. Silvofishery is also known as wanamina, which consists of two syllables, namely "sylvo" which means forest of trees; in other words "wana", and "fishery" which means fishery; in other words "mina" [3]. Silvofishery is one part of the agroforestry system. In this system, each constituent commodity provides a positive interaction with its environment. In the constituent components of this service activity, the type of Chinese petai plant or petai leaves can balance the pH of the water so that catfish can develop properly. Likewise, other types of plants such as jengkol and guava can have a positive impact both in terms of ecology and economy.

The use of information technology that is still lacking can be maximized to help build village profiles and promotions, it can be seen from the lack of detailed information related to the map of the administrative center, information on regional potential and local advantages/wisdom [4]. The development of silvofishery itself will increase the income of rural communities so that they can be more independent from an economic point of view.

Based on this background, there are 2 problems encountered by partners in village development efforts, namely the first is the unavailability of an adequate village administrative center map in Kedai Damar Village. The second problem is the low skill of the village community in land use seen from the livelihoods of the people of Kedai Damar Village.

Some of the problems that these partners have, the community service program for village community groups in Kedai Damar Village is expected to be implemented. This community service program aims to utilize information technology using drones so that it can be maximized to help build profiles, promote villages and provide detailed information with maps of the village administrative center. In addition, increasing the skills of rural communities by using land through silvofishery by planting guava, jengkol and petai trees as well as cultivating catfish and eels, so as to improve the economy and skills of the people of Kedai Damar Village.

2   Methods

The implementation of this community service program was carried out at the location of Kedai Damar Village, Tebing Tinggi District, Serdang Bedagai Regency in August 2022. The main materials and tools in this community service program are drones, water guava tree seeds (Syzygium aqueum), Petai (Parkia speciosa), jengkol (Archidendron pauciflorum), catfish and eel seeds. The method of implementing community service programs in Kedai Damar Village is divided into 3 (three) main activities, namely:

1. Purchase and delivery of water guava tree seeds (Syzygium aqueum), Petai (Parkia speciosa), jengkol (Archidendron pauciflorum), catfish and eel seeds which will be installed/placed in Kedai Damar Village and will be developed by the community using the Silvofishery - Agroforestry system.

2. Training and counseling on land use using the silvofishery-agroforestry system and providing insight into using UAV (Unmanned Aerial Vehicle) for village mapping.

3. Training and counseling on land use management with a sustainable sivofishery-agroforestry system.

3   Result and Discussion

Participants in community service activities consisted of the Kedai Damar village community, Tebing Tinggi District, Serdang Bedagai Regency, North Sumatra Province. This activity was carried out at the Kedai Damar Village Office which was attended by the Village Head, Mr. Sahdhan Silalahi and the Village Warden. The socialization activity regarding utilizing UAV (Unmanned Aerial Vehicle) for Village Mapping and Community Economic Empowerment Through Silvofishery in Kedai Damar Village, Serdang Bedagai, North Sumatra went smoothly and received a warm welcome from the participants as well as the Village Head and Village Apparatus. The participants of the activity were very enthusiastic when they listened to the presentation of the material read by the presenters.

The presenters educate the public about using UAVs (Unmanned Aerial Vehicles) for village mapping. Aerial photography technology using drones can provide an overview of the conditions of an area through aerial photography. This description is a detailed description of the state of the village which can then be used as a basis for preparing village development plans.

Figure 1. Delivery of seeds of water guava (Syzygium aqueum), Petai (*Parkia speciosa)*, jengkol (Archidendron pauciflorum), catfish, and eel seedlings to Kedai Damar Village, Tebing Tinggi District, Serdang Bedagai Regency

Silvofishery combines several components, namely tree crops, agricultural crops and fisheries. A land can be called silvofishery if there are all three components above in one area. In this community service activity (PKM), the silvofishery pattern carried out is the core pond pattern, namely the fish pond in the middle and surrounded by trees. The function of the tree here is not only to increase people's income but also as a shade for pond water. The delivery of seeds of jengkol, guava, petai, catfish, and eel seedlings is carried out as a trigger and an early stage in aquaculture activities using the silvofishery system.

4   Conclusion

Community service activities received a warm welcome and high enthusiasm from the socialization participants and the Village Head, Mr. Sahdhan Silalahi, and Kedai Damar Village apparatus, Tebing Tinggi District, Serdang Bedagai Regency, North Sumatra Province. In addition to mapping the administrative center of Kedai Damar Village. Another activity was socialization to improve skills regarding silvofishery-based land use to improve the community's economy and optimal land use.

5   Acknowledgments

REFERENCES

[1] BPS. *Kecamatan Tebing Tinggi Dalam Angka. Badan Pusat Statistik*, Kabupaten Serdang Bedagai. 2018

[2] Siagian N. Pengaruh Pendampingan Dan Pendidikan Terhadap Peningkatan Pendapatan Anggota Koperasi Di Desa Kedai Damar Kecamatan Tebing Tinggi Kabupaten Serdang Bedagai. *Jurnal Stindo Profesional* VI 6 2443 – 0536. 2020

[3] Sulia, I., Eko, B.P., & I Nyoman, N.S. Panduan Pengelolaan Budidaya Tambak Ramah Lingkungan di Daerah Mangrove. *Wetlands International – Indonesia Programme*. Bogor. 75. 2010

[4] Ghazali MF, Hesti , I Gede BD. Pemanfaatan Drone Untuk Pemetaan Potensi Ekowisata Di Kecamatan Panca Jaya, Mesuji. Sakai Sambayan — *Jurnal Pengabdian kepada Masyarakat* 4 1.