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Mapping Agricultural Areas in Glagah District to Determine The Amount of Grain Production (Rice Husks)

Ananda Dimas Mukti Bayu Saputra[1], Fajar Aryogani[2], Hilmy Ghani Utama[2], Indah Maharani Puspitasari1, Novia Nadzifah[1], Ardika Nurmawati[1], Wiliandi Saputro[2], Erwan Adi Saputro[1*]

[1]*Chemical Engineering Department, Faculty of Engineering, Universitas Pembangunan Nasional "Veteran" Jawa Timur*
[2]*Mechanical Engineering Department, Faculty of Engineering, Universitas Pembangunan Nasional "Veteran" Jawa Timur*
[1*]*erwanadi.tk@upnjatim.ac.id*

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Abstract

Area mapping is used to find out the potential that can be explored in an area. Geographically, Glagah District is located in the area of Lamongan Regency which is located in the northern hemisphere, approximately 15 Km from the capital of Lamongan district, located at coordinates between 06° 53' 30.81" – 7° 23'6" South Latitude and 112° 17' 01.22" – 112° 33'12". Glagah District has an area of 3,888 ha of agricultural land and makes agricultural products in this area quite large. Grain production in Glagah sub-district was 29,104 tons and 18,623.29 tons of rice production in 2019. The large amount of grain obtained makes the potential for processing rice husk waste a thing that needs to be considered. One way to process rice husks is by converting rice husks into burnt charcoal, considering that the silica content in rice husk ash is quite large at 87-97% of dry weight. This method is fairly easy to do and burnt husk charcoal can be used for organic fertilizer that is beneficial for plants.

1. Background

Area mapping is one of the ways that can be used for natural resource management. Mapping is not only a visualization tool but also used as a decision-making tool in spatial planning and exploration of natural resources. One of the government's and the school system's initiatives in developing villages is village development. This village's growth serves as the foundation for recognizing and organizing development, some of which are in the plantation industry. Thus, mapping the village's potential is essential since it will eventually form one of the development routes for the hamlet (Baizuny et al., 2023). An agricultural potential mapping is required to determine the quantity of potential for agriculture. Surveys and discussions with village leaders are used to gather potential mapping information (Dharmawan et al., 2023).

Indonesia has an area of agricultural land of 47.6 million ha with a population that increases by 1.36% every year (Yulianto et al., 2020). The increasing population and food needs in Indonesia make agricultural land management must be maximized as best as possible. Rice husks are a waste from rice milling that is very abundant in Indonesia. Each ton of rice that has gone through the milling process can produce about 20% rice husk. Rice husk is a waste that has great potential to be used as organic fertilizer, building materials, and briquettes. One of the areas in Lamongan Regency is Glagah District producing grain of 29,104 tons (Badan Pusat Statistika Lamongan, 2019). The large amount of grain produced makes environmental pollution because it is only made in piles, therefore it is necessary to innovate regarding the use of rice husks in Glagah District.

2. Methods

The analysis data used in this study were secondary data from the Internet and book literature. This method could represent the condition in Meluwur Village, Glagah District, Lamongan. This study analysed rice

fields and rice production. The mapping location was obtained from Google Maps.

3. Results and Discussions

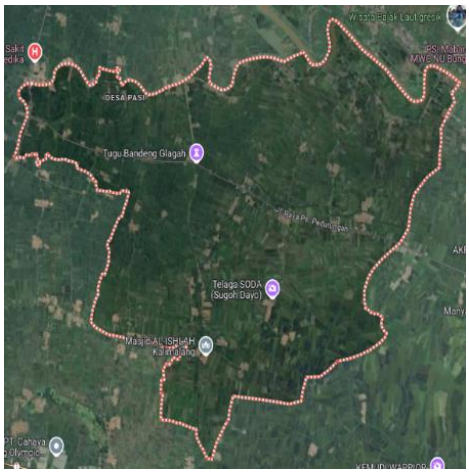

Figure 1. Map of the area of Glagah sub-district

Lamongan Regency is one of the districts in East Java. Lamongan Regency has 27 sub-districts, one of which is Glagah District. Glagah District has an area of 4,831,866 Ha, of which 3,888 Ha is agricultural land. This shows the importance of the agricultural sector in Glagah District. The community cultivates crops by planting rice as the first commodity, where in Glagah sub-district has produced 18,632.29 tons of rice with 29,104 tons of grain (Badan Pusat Statistika Lamongan, 2019). The amount of production produced makes the grain pile into waste that is not used or in other words just wasted. Seeing the potential amount of grain produced per year, innovations can be made regarding the management of grain or rice husk waste into a product that is beneficial to the economy and the environment. Therefore, training was carried out on the processing of rice husks into burnt husks that can be used as organic fertilizer as well as income for the community.

Table 1. Area of rice fields in each village in Glagah sub-district (Badan Pusat Statistika Lamongan, 2019)

Village	Area (Ha)	Irrigated rice fields	Non-irrigated rice fields
Kentong	1.8	1.63	0
Wangen	2.13	0.95	0
Bangkok	1.64	0	0
Meluntur	1.06	1.02	0
Dukuhtunggal	3.63	2.24	0
Bapuhbandung	1.65	1.53	0
Tanggungprigel	1.3	1.23	0
Sudangan	1.43	1.32	0
Karangagung	1.27	1.14	0
Duduk lor	1.57	1.47	0
Medang	1.33	1.22	0
Mendogo	1.44	1.34	0
Began	0.66	0.64	0
Menganti	2.35	1.88	0
Rayunggumuk	2	1.74	0
Gempolpendowo	1.11	0.94	0
Soko	1.32	1.16	0
Morocalan	1.05	0.9	0
Pasi	1.86	1.5	0
Margoanyar	1.94	1.77	0
Glagah	2.19	1.9	0
Bapuh baru	1.69	1.41	0
Jatirenggo	2.52	2.2	0
Konang	0.84	0.69	0.03
Wonorejo	1.21	1.08	0.02
Panggang	1.40	1.32	0
Wedoro	1.21	0.9	0
Karangturi	2.02	1.58	0.07
Meluwur	1.48	1.05	0.25
Total	47.1	37.75	0.37

Tabel 2. Rice production in Glagah District in 2019 (Badan Pusat Statistika Lamongan, 2019)

DISTRICT	AREA (Ha)	PRODUCTIVITY (TON/Ha)	GRAIN PRODUCTION (TON)	RICE PRODUCTION (TON)
GLAGAH	3,994	7.29	29,104	18,632.29

Figure 2. Map of the area of meluwur village

4. Conclusion

Glagah District has great potential in the agricultural sector with a large total annual rice production. However, large production also produces large grain or rice husk waste, where this waste has not been utilized optimally. With this great potential, it is necessary to manage to turn this rice husk waste into useful products, one of which is by processing it into burnt husks.

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