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Potential Abandoned Land in Bogor Regency for Private Forest Business

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Abstract

The abandoned land and indicated abandoned land are considered critical land or land that is less productive. Those lands covered about 13,000 ha of Bogor Regency area, with the critical land area of around 93,467.51 ha (32%). To reduce the area of critical land and increase land productivity in Bogor can be done by optimizing the abandoned land for private forest use. This study aimed to analyze the potential and opportunities for private forest use in abandoned land. The method used was an investigative approach with quantitative and qualitative descriptive analysis. This study showed that in terms of land characteristics and biophysical conditions, the abandoned land could be developed for private forest business, especially to cultivate forest business, such as sengon (Albizia chinensis), kayu afrika (Maesopsis eminii), jabon (Neolamarckia cadamba), mahoni (Swietenia mahagoni), and kayu manis (Cinnamomum verum). The majority of respondents (65%) were willing to do partnerships in private forests. However, several factors are needed to support this business, i.e., regulations in the form of incentives and disincentives from local governments, investors, facilitators, and market access.

Keywords: *private forest, land suitability, abandoned land, a partnership scheme*

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Introduction

The total area of Bogor Regency is 299,408.85 ha, where KLHK (2003) designated 78,505 ha (26.22%) as forest area. However, BAPPEDALITBANG Kabupaten Bogor (2016) stated that the non-forest area of 13,000 ha (4.34%) is considered abandoned land. Also, in Bogor Regency, around 93,467.51 ha (32%) is considered critical land and very critical land (Dishut Provinsi Jawa Barat, 2019).

Dariah et al. (2004) defined critical land as land that continuously degrades. This land is characterized by a reduced land cover (vegetation) and erosion symptoms, reducing the hydrological function (Puslitbangtanak, 2004). Tejoyuwono and Sutanto (1999) explained that critical land results from overexploitation, erosion due to shifting cultivation, and intensive deforestation create critical land.

The area covered by weeds, shrubs, and bare land is often characterized as abandoned land. In the long term, this kind of land can cause land degradation. The research by Agus and Subiksa (2008), Sitorus et al. (2011), and Agus et al. (2013) states that land use/vegetation cover was essential to land degradation since it is related to the percentage of land cover and the number of standing trees per unit area. For example, various forest conversions have decreased soil organic C content by 13%, 26%, 33%, and 36%, respectively, for land planted with rubber, mixed gardens, dry fields, and oil palm (Yasin, 2004).

Other research shows that abandoned land has harmed the environment, society, and economy. The environmental impacts are de-population in rural areas, biodiversity loss, hydrological instability, increased fire risk (depending on land-use history), climate, and landscape composition. In addition, the impacts that occur in an area can vary, depending on the situation and conditions (Beilin et al., 2014). For example, it can increase the risk of natural disasters (Romero-Calcerrada, & Perry, 2004) and changes the water resources (Poyatos et al., 2003).

From a social and economic perspective, abandoned land can reduce food production and threaten traditional landscapes, both culture and connectivity (Latvian Ministry of Agriculture, 2004). According to Sembiring and Wibowo (2020), the estimated economic loss due to abandoned land is IDR15.1 trillion and more than 400 thousand people employment loss in the plantation sector.

An alternative to reduce critical land is by utilizing the indicated abandoned land for private forest business. Based on the Decree of the Minister of Forestry Number 49/1997, the private forest is defined as a forest owned by the people with a minimum area of 0.25 ha, covered by woody plants more than 50%, or have at least 500 plants ha^{-1} in the first year. Growing deep-rooted and leafy plants in the private forest will increase soil organic matter content and groundwater content that helps plants grow (Imtias & Syarifudin, 1991). Murniati (1995) noted that the canopy cover in private forests with agroforestry systems is between 96.4–246.3%, while it is 170% in natural forests.

Based on the data from Dishut Provinsi Jawa Barat

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(2019), the total private forests area in Bogor Regency is estimated at 84,432.88 ha with a total timber production of 760.35 m^3 $year^{-1}$. Provided with that data, this research on abandoned land is vital since it provides environmental, social, and economic benefits to the party involved.

Research questions Land use is defined as any form of human intervention on land resources, both permanent and cyclical, aiming to meet their material and spiritual needs (Ritohardoyo, 2013). According to Barlowe (1978), the factors that influence land-use patterns are physical-biological factors, economic considerations, and institutional factors. Land use will be related to the economic value of land (land rent), which is the net income obtained by an economic actor through the activities carried out in a space unit with specific technology and management efficiency and within a certain period (usually annually). Therefore, the land is not considered to have economic value if there are no activities on the land (Rahim & Hastuti, 2007).

The landowners tend to find land uses alternatives with the highest profitable income and best use. This concept considers factors that affect land capabilities, such as the accessibility and quality of land resources and the environment. Landowners' best and highest options are usually industrial and commercial areas, followed by residential areas, agricultural areas, grazing fields, and uncultivated wild areas (Suparmoko, 1989).

Saefulhakim and Nasoetion (1995) stated that land use is a dynamic process, continuous change, resulting from changes in the pattern and magnitude of human activity over time. Moreover, land use is a reflection of the economy and people's preferences. Thus, the choice of land use can develop towards improving the community's welfare or vice versa. On the other hand, abandoning land may cause personal losses. Those losses came in the form of opportunities loss to earn income from the land and social losses such as loss of land potential to generate production and employment.

Alternatives to increase the productivity of abandoned land is using it as a private forest business. Irawanti et al. (2012) stated that several studies have shown that private forest business has provided social and economic benefits. According to (Sari et al*.,* 2018), community perceptions of private forests are also positive. People view private forests as being able to carry out economic, social, and ecological functions well. An increase in income indicates economic function. The ecological function is indicated by preventing floods and landslides, generating water sources, and conserving soil. The social function of private forests is indicated by the availability of employment, ecotourism, and partnership opportunities.

Although the business opportunities are pretty promising, the use of abandoned land depends on the landowners' decision to leave the land unmanaged for unpredictable periods. This period can be affected by social, economic, or personal factors (Alcantara et al*.,* 2012). The extensive area of abandoned land in Bogor District raises several questions regarding the factors causing abandoned land and enabling factors for developing private forests. Based on the aforementioned problems, the questions addressed in this study are as follows:

1. Why landowners left their land abandoned?
2. What factors affect landowners to utilize their land and willingness to choose a private forest business?
3. What factors affect landowners to choose the scheme in utilizing the abandoned land?
4. How much is the abandoned land potential for business in the private forest business?

Objectives This study aimed to analyze the potential and opportunities for private forest business in abandoned land.

Methods

Limitation This research defined the abandoned land as outside the forest area (beyond forest areas) not utilized or underutilized by the rights holder and covered by reeds, shrubs, or bare land. Based on the government spatial plan, this land is classified as a cultivation area with non-critical land conditions and has land capability in Class I–IV (KSKP IPB, 2013). Land management includes landowners, land keepers, and land cultivators. The location is in Bogor Regency.

Procedures This research began with determining the location based on the map of abandoned land conducted by DKSKP IPB in 2013. The next stage is data collection consisting of secondary data and primary data. Afterwards, data analysis was carried out with qualitative and quantitative descriptions. The next step is to discuss the potential and business opportunities of private forestry in abandoned lands, and the last step is to formulate conclusions based on the analysis and discussion. More detailed procedures can be seen in Figure 1.

Location determinations The research location was designed (purposive sampling*)* based on the distribution map of the abandoned land (DKSKP IPB, 2013). Determining the research location is done in stages, starting from the determination of the districts and then the villages. The land criteria are geographical representativeness, accessibility, and

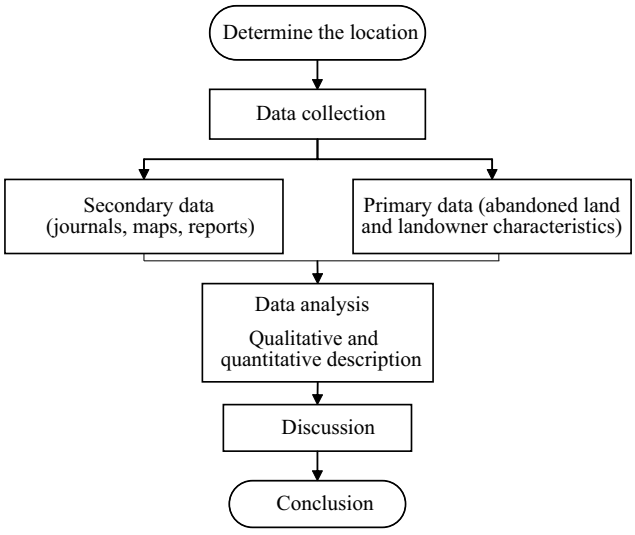

Figure 1 Flow diagram of research.

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land area. This study came with eight selected districts, namely Leuwiliang, Leuwisadeng, Jasinga, and Pamijahan, representing the western part of Bogor, Jonggol (the eastern part), Cigombong, Ciawi, and Caringin representing the southern part. Entire villages from those eight districts are 25 villagesthe complete information can be found in Table 1 and the location map in Figure 2.

Data collection Data collected in this study are literature review and respondents' investigation. The first step is a literature review by analyzing a map of abandoned land in Bogor Regency 2013 by DKSKP IPB and other relevant published documents. The next step is observing and verifying the research location on the map by conducting structured interviews with 108 respondents, including landowners, land keepers, or land cultivators. The method of choosing respondents is purposive sampling combined with the snowball method. In addition, this study conducts in-depth interviews and focus group discussions (FGD). Key figures such as the village head, regional apparatus work unit (SKPD) staff, and several members of the regional people's representative council (DPRD) attend these interviews and FGDs.

This research uses primary and secondary data. The primary data were acquired from observation, interviews, and a series of FGDs. In comparison, the latter was obtained

Table 1 Research locations

No	Village	District	No	Village	District
1	Cibeber I	Leuwiliang	14	Tugu Jaya	Cigombong
2	Cibeber II	Leuwiliang	15	Pasir Jaya	Cigombong
3	Leuwiliang	Leuwiliang	16	Wates Jaya	Cigombong
4	Leuwisadeng	Leuwisadeng	17	Cisalada	Cigombong
5	Sadeng Kolot	Leuwisadeng	18	Cinagara	Caringin
6	Gunung Bunder I	Pamijahan	19	Tangkil	Caringin
7	Gunung Bunder II	Pamijahan	20	Cimande Hilir	Caringin
8	Pangaur	Jasinga	21	Pancawati	Caringin
9	Joggol	Jonggol	22	Teluk Pinang	Ciawi
10	Cibodas	Jonggol	23	Bitung Sari	Ciawi
11	Sukasirna	Jonggol	24	Cibedug	Ciawi
12	Sukajaya	Jonggol	25	Pandan Sari	Ciawi
13	Sukanagara	Jonggol			

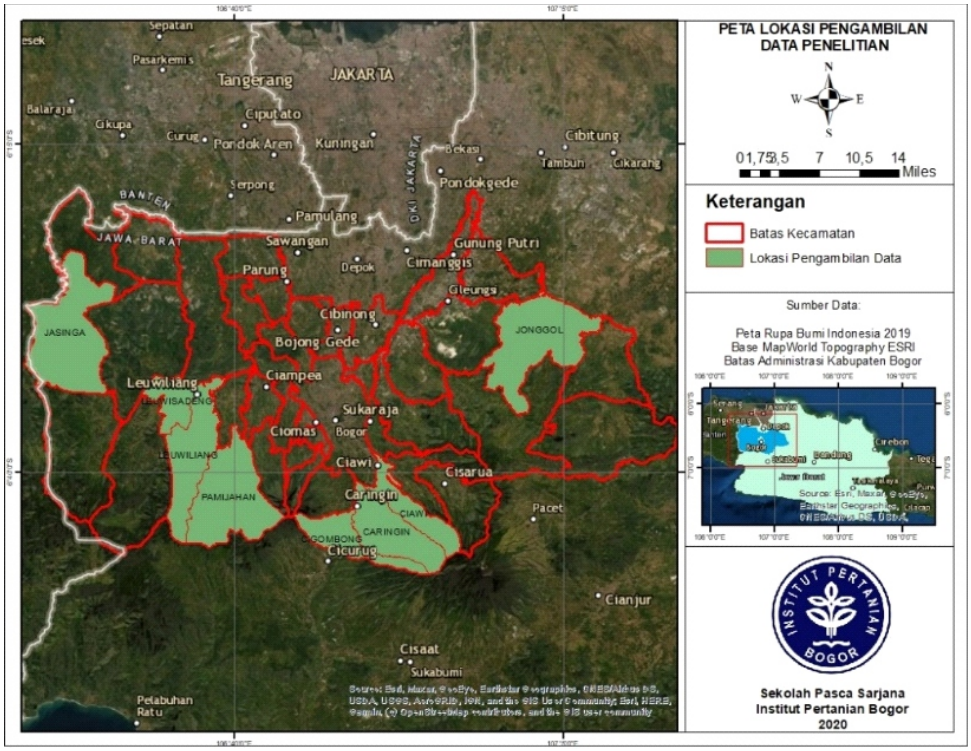

Figure 2 Data collection location.

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from journals, published papers/reports, or other relevant data.

Data analysis Quantitative and qualitative methods (descriptive qualitative) were applied to analyze the study's primary and secondary data. Quantitative analysis was done by interpreting the frequency table combined with qualitative analysis. Qualitative analysis stressed the description of facts and relationships between variables in the field.

Results and Discussion

Respondents characteristics The interviews show that the majority of respondents (83%) belong to the productive age (19–59 years) (BPS, 2020). If we see the education level, most respondents graduated from junior high school (47%), and only 9% hold a bachelor's degree. This data is higher than Bogor Regency's average length of schooling, which is 7.88 years (BPS, 2020). Other information is that most of the respondents are land managers (72%), landowners (18%), and land cultivators (10%). The land managers and the land cultivator have permission to manage the land from the landowners. This data also described that most of the landowners did not live near their land.

The respondents' age, education level, and ownership status data below (Table 2) can utilize the abandoned land. However, they also need ongoing assistance in terms of technology transfer or others. The complete data can be seen in Table 2.

Land status Based on land status, if we look at the legal aspect, 53.16% hold land title, while the rest is untitled (*girik* or deed of sale and purchase). Most abandoned land (73%) has an area of more than 1 ha. Therefore, the conflict potential is minimal. Even though the landowner rarely visited their land, they entrusted the management to local people. Thus, social recognition on those land is vital. This condition creates supportive factors in running a private forest scheme.

Table 2 Respondents characteristics

Characteristic	Number of respondents	Proportion (%)
Age (years)		
19–29	11	10
30–39	20	18
40–49	26	24
50–59	33	31
60–69	8	7
>69	11	10
Total	108	100
Level of education		
Primary school	24	22
Junior high school	51	47
Senior High School	19	18
Bachelor	10	9
Others	4	4
Total	108	100
Ownership status		
Owners	19	18
Managers	78	72
Cultivators	11	10
Total	108	100

Reason landowners left their land abandoned The survey showed that the majority of landowners chose not to manage the land because they do not have enough capital (33%) nor management plan (31%), built into a property (16%) or be sold (11%) as explained in Table 3.

Based on those top four reasons, economic factors are the main reason landowners decided not to manage their land. On the contrary, social factors such as migration, old farmer's age, and low population growth are not the main reasons the land is left unmanaged. Since most abandoned land in this study (82%) was owned by people outside the village, who entrust the management to the managers or farmers living nearby. This study also notes that 59% of the landowners rarely visited land (less than two times in a year). Therefore, economic factors are the most substantial factors that landowners do not manage land, added by data on the reasons and objectives of purchasing the land (Table 4).

From Table 4, the main reasons respondents buy land were low prices (35%), land area (30%), and strategic locations (16%). In addition, the initial purpose of buying the land was for long-term investment (60%) and business purposes (29%). The business purposes were agricultural or non-agricultural, such as housing, sand mining, building rent (*ruko*), and factory.

From Table 3 and Table 4, the reasons the land left unmanaged are economic and investment factors—this corresponds to Kuliešis and Salengaite (2011) and Nishihara (2012) study. The main economic factor is lack of capital, while investments factor driven by the cheap purchase price, strategic location lead to potential future investment. Research by Ilyas (2000) found that investment in the land is quite promising, where the average increase in the land selling value in Jakarta from 1988 to 1966 was 22.26%. Alexander (2021) stated the average increase in land prices was 13% in Greater Jakarta (Jakarta, Bogor, Tangerang, Bekasi) in 2015 and 2016. The results of a 2018 study by the Indonesian Ministry of Agrarian and Spatial Planning showed that the average increase in agricultural land price in Langkat Regency reached 31.6 %.

Factors that affect landowners to utilize their land and willingness to choose a private forest business Based on the analysis, what affect landowners to utilize their land and

Table 3 Causes of land is not managed

The reason the land is not managed	Quantity	Proportion (%)
The certificate is mortgaged at the bank	1	1
Land for sale	12	11
No capital to manage	36	33
Land used as type-C excavation	4	4
Land will be built	17	16
No management plan	34	31
Conflict	1	1
Bankruptcy	3	3
Total	108	100

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willingness to choose a private forest business are biophysical and biological factors, economic factors, and institutional factors (regulation). This analysis follows the research results (Barlowe, 1978).

Physical and biological factors Physical factor like land slope and harmful biological factors such as unfertile land or difficult water access has made the landowner fewer option in managing their land and led to more considerable investment cost. Based on study analysis, landowners with harsh physical conditions and bad biological conditions choose to idle their land until they find a suitable business and hope to increase land value. Based on physical and biological factors (Table 5), the right business is a private forest.

Economic factor Choosing a land utilization business is a rational decision. It means the landowner will likely take the most economically profitable option. The interview found that 64% of abandoned land has been utilized in agriculture or non-agricultural business but suffered a loss; therefore, the landowner chose to leave it unmanaged—most of the land was covered by reed, shrubs, or bare land in this research.

By not utilizing the land, landowners only have to pay taxes each year and pay the land managers. Some landowners chose not to pay the land managers but let them utilize the land. Landowners will likely decide to leave their land unmanaged as taxes and other costs are lower than risk or utilization costs. Another economic factor is capital availability. Landowners usually have a business plan, such as building a housing area or agricultural ventures but have neither the capital nor the investors.

Based on the aforementioned factors, the private forest business is the potential to develop. However, it should note that it will need partners who have capital, human resources, and market access.

***Institutions and institutions* (*regulation*)** The government already set an instrument or regulation to control the abandoned land through UUPA Number 5/1960 (UU RI, 1960) and PP Number 20/2021 on procedures for controlling abandoned land (PP RI, 2021). The rights on land are automatically deleted if found abandoned. Nevertheless, those regulations are not well implemented since the rights owner does not fully understand the abandoned land regulations. Other obstacles are (a) there are no clear criteria yet on the period, (b) lack coordination between agencies, (c) lack of publication on abandoned land regulation (Paputungan et al., 2018). As long as the abandoned land regulation did not go well and no punishment set, the landowners would not have been motivated to maximize their land utilization. The procedures for controlling abandoned land are not ideal yet. Therefore, the regulations have not supported the private forest business to reduced abandoned land.

Expected business in managing abandoned land Based on the interviews, the majority of abandoned landowners expected agriculture business (39%), forestry (18%), and agroforestry (14%) (detail explained in Figure 3). However, while 18% expected forestry business, 61% of respondents were interested in the private forest business. This number showed that most of them would likely join the private forest business to find an exciting program or investors. Other factors that encourage them to choose this business are that it does not need intensive care and serves as a medium or long-term investment. On the other hand, landowners chose the agriculture business since it was more profitable in the short term.

Willingness to participate in private forest business On the private forest business topic, 65% of respondents were willing to participate in this program while others were not. Those unwilling respondents prefer to utilize their land for something else, for example, made it into a building. For willing landowners, the type of partnership they expect is management collaboration (46%), lease (17%), profit sharing (11%), while 26% choose to sell their land. This partnership scheme is easy to implement since it involved land managers and information and technology transfer happened. This experience hopefully will be helpful in the future.

Factors that affect landowners to choose partnership type In general, the partnership types offered are lease, profit sharing, and management collaboration. In a lease,

Table 4 Reasons and objectives in buying the land

Reason and objective	Number of respondents	Proportion (%)
Reason		
Land area	32	30
Low price	38	35
Strategic location	17	16
Other	21	19
Total	108	100
Objective		
Investment	65	60
Business	31	29
Village development	5	5
Other	7	6
Total	108	100

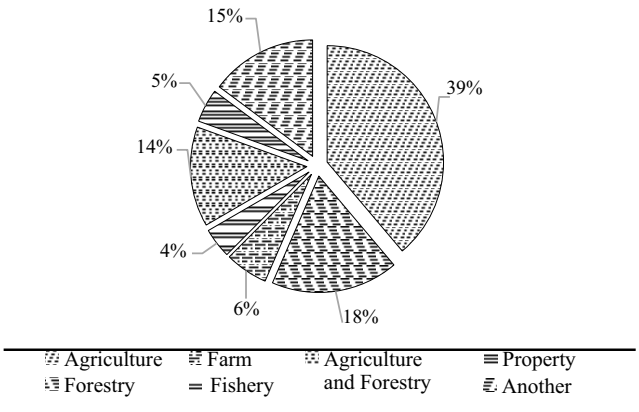

Figure 3 Expected business by abandoned landowners.

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landowners will receive agreed-on money within the specified time interchange with their land. The landowners do not bear the business risks in this type of partnership, but the rental price is usually lower than other types.

In profit-sharing type, landowners benefited from business profit sharing. It means they also share the risk; they will not profit in case of failure or loss. This type of partnership offers more than a lease. Besides, the landowners do not have to be deeply involved in the business and spend time and other resources. The amount agreed in this type of partnership is usually between 20–30%.

The third type of partnership is management collaboration, in which landowners co-participate in business management and provide the capital, goods, labour, or other production items. In this type, the landowner shares the loss on investment. On the other hand, landowners gain more significant profit and a chance to "learn" how to manage a business. This experience hopefully will be helpful in the future.

Respondent's choices and characteristics were then analyzed to find factors that affect landowners to choose partnership type. Those factors are the type of business offered, risk, capital ownership, and the respondent's interest in running the type of business offered.

Access to water and roads In developing private forests, access to water and road is essential. Water is a vital physical component for plant growth. As much as 85–90% of the plant's cells and tissues are water (Maynard & Orcott, 1987). Access to the main road is a significant factor in developing private forests. If the private forest is far from the main roads, it will lower the timber price (Zoraya, 2012).

Water holds a vital role in a plant nursery. Consequently, it is essential to build plant nurseries near the water source, i.e., river and water fount (Irawan et al., 2020). From the interviews, the distance of abandoned land from the water sources are less than 50 m (25%) and more than 50 m (75%). In addition, 65% located less than 200 m. These numbers showed the potential of pipe use from water source to land. More data about access to water can be seen in Table 4.

In terms of direct road access, most of the land observed is relatively close to the main road. As much as 36% are located within 0–1 km and 20% within 1–2 km, only 5% are located more than 6 km. Therefore, the abandoned land can develop into a private forest business by looking at those numbers since the transportation cost will be lower. More data can be found in (Table 5).

Growth suitability Growth suitability or land suitability is a land category that describes the land compatibility for a specific use. Tjokrokusumo (2002) explained that we could determine land compatibility by interpreting the detailed data on soil survey and its relation with several crops and management types. Soekotjo (1976) explained that the factors of the place to grow are divided into 4 (four) groups, namely climatic, edaphic, physiographic, and biotic. Thus, the place to grow is a combination of biotic, climatic, and soil conditions.

In this study, the suitability of growth discussed is the abandoned land's soil, altitude, and climate. Based on observations, the tree species cultivated by private forest farmers in Bogor Regency are *sengon* (*Albizia chinensis*), *kayu afrika* (*Maesopsis eminii*), *jabon* (*Neolamarckia cadamba*), *mahoni* (*Swietenia mahagoni*), and *kayu manis* (*Cinnamomum verum*). Therefore, this study will discuss whether the growth factors (especially soil type, altitude, and climate) in abandoned lands follow the growing requirements for *sengon*, *kayu afrika*, *jabon*, *mahoni*, and *kayu manis*.

The ideal growth requirements for tree species like *sengon, kayu afrika, jabon*, *mahoni*, and *kayu manis* can be seen in Table 6. In contrast, the analysis of suitable trees with biophysics criteria in the study location is in Table 7. The distribution of soil types in the location research is in Figure 4.

Based on the analysis of the growing area suitability (land type, climate, and height), it can be concluded that the abandoned land has the potential for a private forest business. The potential trees to plants are *sengon*, *kayu afrika*, *jabon*, *mahoni*, and *kayu manis*.

The important thing that needs to be improved is regulation, such as incentives and disincentive mechanisms for landowners. In addition, land managers generally do not have the capital and human resources to manage private forests. Therefore, the most appropriate partnership scheme is collaboration, where landowners can provide land while investors provide capital and human resources. In this scheme, land managers can learn to manage private forests to run their businesses independently in the future. Investors can come from private timber industries, and facilitators can come from universities or other competent parties.

Compared to monoculture farming, housing, and community mining (excavation type C), private forest business of abandoned land is more advantageous. This is because private forests do not require significant capital and intensive maintenance compared to monoculture farming. In addition, this business fits the land characteristics, in which most abandoned land is often not in the same region as its landowners.

A large area and strategic location are essential in the property business. In addition, it requires a lengthy bureaucratic process dan significant capital. Thus, the

Table 5 Distance land to the water source and main road

Distance to the water source (m)	50	51–100	101–200	201–300	301–400	401–500	500	Total
n	27	14	29	3	7	17	11	108
Proportion (%)	25	13	27	3	6	16	10	100

Distance to the main road (km)	0–1	1–2	2–3	3–4	4–5	5–6	6	Total
n	38	21	14	15	6	8	5	108
Proportion (%)	36	20	13	14	6	7	5	100

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Table 6 Ideal growth requirements for several private forest tree commodities

Tree type (Local name)	Soil type	Altitude	Climate
Sengon	Can grow well on regosol, alluvial, and latosol soils	With regosol, alluvial, and latosol soils, optimal altitude between 0–800 m asl can still grow at a max height of 1,500 m asl	Requires a temperature between 18–27°C with rainfall of 2,000–4,000 mm year^{-1}
Kayu afrika	Soil with a lot of water content in the soil (along the river) can also grow on alluvial soils, can grow well on latosol soil types	Can grow at an altitude of 600–1,800 m asl	Rainfall 1,200–3,600 mm year^{-1} with a temperature of 15–45°C
Jabon	Soil clay, podsolic brown, and red moist alluvial	Height grows from 0 to 1,000 m asl	Rainfall of 1,250–3,000 mm year^{-1} with a temperature of 10–40°C
Mahoni	Can grow in arid areas and a resilient plant	Can grow at a height max 1,500 m asl	Rainfall of 1,524–5,085 mm year^{-1} with a temperature of 11–36°C
Kayu manis	Andosol, latosol can be planted in slopes, loose, and fertile soil	Can grow to an altitude of 2,000 m asl	Rainfall of 2,000–2,500 mm year^{-1} with a temperature range between 18–27°C

Source: BMKG (2020), BALITRO (2017), Mulyana and Asmarahman (2011), Hadi and Rodame (2012), Sumarna (2012)

Table 7 Types of private forest commodity trees according to the biophysical characteristics of the research location

Location	**Soil type**	**Bogor Regency climate**				**Altitude (masl)**	**Suitable tree types (Local name)**
		Temperature (°C)	**Average humidity (%)**	**Annual rainfall (mm)**	**Sunshine duration (hour)**		
Caringin	Latosol dark reddish-brown, lithosol brown	15–31.2	49–100	2500–5000	0–10	450–786	*Sengon, kayu afrika, mahoni, kayu manis*
Ciawi	Latosol dark reddish-brown, lithosol brown	15–31.2	49–100	2500–5000	0–10	400–800	*Sengon, kayu afrika, mahoni, kayu manis*
Cigombong	As brown latosol and grey regosol, chocolate lithosol	15–31.2	49–100	2500–5000	0–10	400–800	*Sengon, kayu afrika, mahoni, kayu manis*
Jasinga	As podzolic yellow and hydr mrf gray	15–31.2	49–100	2500–5000	0–10	52–75	*Jabon, mahoni*
Leuwiliang	As latosol brown and yellowish-brown, red podzolic	15–31.2	49–100	2500–5000	0–10	200–500	*Jabon, sengon, kayu afrika, mahoni, kayu manis*
Leuwisadeng	As latosol brown and yellowish-brown, red podzolic	15–31.2	49–100	2500–5000	0–10	190–600	*Jabon, sengon, kayu afrika, mahoni, kayu manis*
Pamijahan	As red latosol, brown latosol, brown latosol ass and grey regosol	15–31.2	49–100	2500–5000	0–10	75–600	*Sengon, kayu afrika, mahoni, kayu manis*

Source: BMKG (2020), BALITRO (2017), Mulyana and Asmarahman (2011), Hadi and Rodame (2012), Sumarna (2012)

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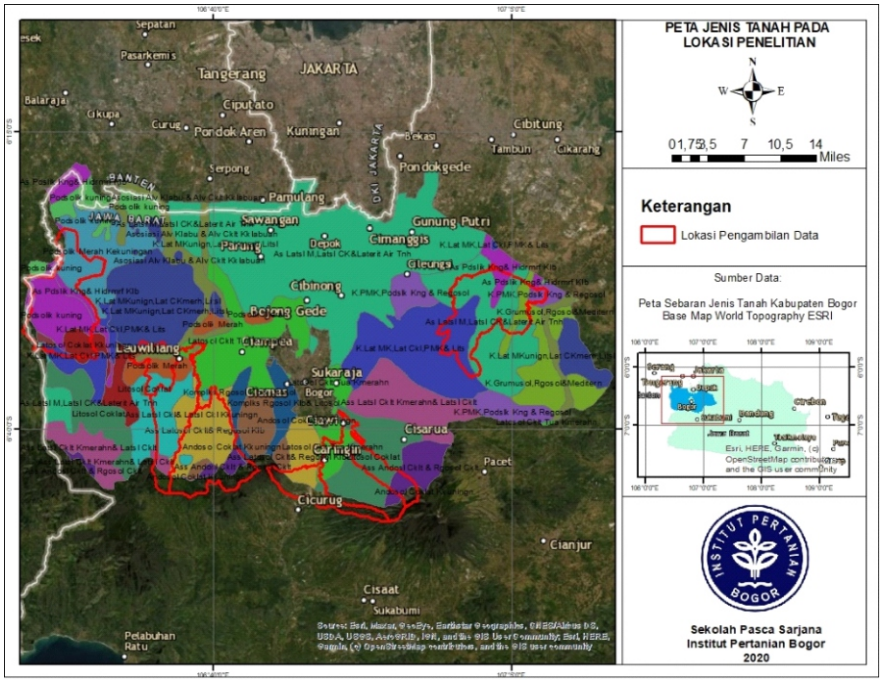

Figure 4 Distribution of soil types in Bogor Regency.

abandoned land is not suitable for the property business. People's mining businesses are also not suitable to be carried out because not all locations contain type C minerals (sand, gravel, river stones, and landfill). Mining businesses also have the potential to cause negative social and environmental impacts.

Conclusion

Factors supporting private forest business in the abandoned land are biophysical conditions such as soil type, climate, altitude, access to water resources, and main roads. The development of the private forest business is *A. chinensis, M. eminii, N. cadamba, S. mahagoni,* and *C. verum* (local name*: sengon, kayu afrika, jabon, mahoni,* and *kayu manis*). Other supporting factors are the reasons and objectives of the landowner to buy the land, the legality of the land, and the social security of the land. The factors that influence the choice in managing abandoned land are the type of business offered, business risk, capital ownership, and respondents' interest in running the type of business offered. Unfortunately, institutions and regulations have not supported private forest business since landowners have no mechanism for incentives and disincentives.

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