

CITRONELLA GRASS PLANTATION AND THE MOUNT LEUSER NATIONAL PARK DEFORESTATION: AN EMERGING CASE IN THE GAYO LUES REGENCY, ACEH – INDONESIA

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ABSTRACT

This study reports the impacts of citronella grass plantation on the Mount Leuser National Park sustainability that was located in the district region of Putri Betung at the Gayo Lues regency, Aceh–Indonesia. The district of Putri Betung consists of thirteen villages with a total area of about 99,686.09 ha. Data collection was carried out through direct observation and an FGD (forum group discussion) with local government officers. The obtained data was analyzed using a qualitative approach. The massive citronella grass plantation by the local people around the National Park region had caused severely deforestation which led to an environmental destruction. It was mostly due to illegal logging activity by the farmer for the firewood needs in the obtaining of citronella oil. It consequently caused water resources depletion, erosion and flooding, and natural diversity destruction. Data from 2020-2021 showed that 3.92% deforestation had occurred in the National Park with the worst damage area was located in Ramung Musara village, and this number would expectedly increase in the next years. Therefore, it is necessary to construct properly efforts by the government and local people to mitigate this issue to prevent a larger environmental destructions in the Mount Leuser National Park.

Keywords: Citronella Oil, Deforestation, Environmental Destruction, Mount Leuser National Park, Putri Betung District

INTRODUCTION

The environmental issues have become a multidimensional problem that involves all social and economic aspects, since they directly influence the human life's quality and sustainability development in the futures (Salim, 2021). Such awareness reminds us of the responsibility to maintain or sustain the earth for future generation (Callan & Thomas, 2012). Forest Watch Indonesia reported that it was more than 23 million ha deforestation occurred in Indonesia since 2017 until 2000 (Kompas, 2021). Changing the forest area into citronella grass plantation, illegal logging activities and forest fire have been indicated as the factors that mostly caused deforestation.

The environmental destruction of primary forests in 2020 was reported higher 12% than the previous years. It was also indicated as the second year where the primary forest destruction reached the worst level in the tropical area (Weisse & Goldman, 2021). Likewise the previous years, the deforestation was mainly caused by the plant commodities production which implied to illegal logging activities either in primary forests or in secondary forests. Indeed, the deforestation and environmental destruction give severely impacts to environmental and social aspects. The deforestation can be defined as a series of activities to diminish the forest area,

either conducted by illegal logger, wood thieves, or company. The raise of deforestation is driven by the changing dynamic in understanding the conservation principles and the mistakes in utilizing the forest (Weisse & Goldman, 2021).

Gayo Lues is a regency located in the Aceh province which consists of eleven (11) districts with a 70% of total area is forest. One of the districts area which is surrounded by the Mount Leuser National Park is known as the district of Putri Betung with a total area of about 99,686.09 ha (Gayo Lues Regency in Figures 2021). In 2020 – 2021, it has been reported that the level of destruction within the forest area around the Putri Betung had reached 3,794.05 ha. Most of the forest destruction was due to the areal conversion into plantation as well as illegal logging activities conducted by the citronella oil farmers (Gayo Lues Regency in Figures 2021). The condition is certainly harmful to the existing ecosystem and sustainability, because the Mount Leuser National Park plays a vital role to maintain the Earth oxygen level or in the other words it acts as the “Earth’s Lung” (Siburian, 2005).

Mitchell (2000) stated that the natural resources and environmental management would undergo the main four (4) situations *i.e.*, (1) changing, (2) complexities, (3) uncertainty, and (4) conflicts. Meanwhile, Juwana (2001) asserted that most of developing countries tended to utilize the natural resources without compromising the environmental aspects, leading to environmental damage and uncontrolled pollution. For the developing countries, natural resource exploitation could be taken as a proper way to be a developed country. Worse, Indonesia is one of the developing countries using this thinking paradigm.

This thinking paradigm has triggered the raise of many environmental issues such as Lapindo Brantas case in the East Java (in 2006), forest fire and plantation in the Riau Province (from 2003 – now), changing the protected forests into urban area in the Riau Province (in 2007), illegal logging in the Kalimantan, and plantation activity in the Mount Leuser National Park at the Gayo Lues regency (in 2021). The Mount Leuser National Park plays as a natural resource that essentially gives a life to the local people around Aceh and North Sumatera. The National Park provides a clean water and air resources in the Aceh and North Sumatera regions. Despite those benefits from the National Park, it is recently estimated that the damaged forest has reached 20% out of the 2.6 million hectares (6.4 million acres) (Esterman, 2021).

The emerging of consciousness in the environmental protection and conservation is strongly driven by a common ethical sense and the necessary to conserve the environment for the future sustainability. The environmental protection is a sustainable effort aimed to attain a wealth and health society. This effort is carried out by the government together with the local people to enhance the effectiveness and efficiency in the management system of natural resources and environments. At least, there were two factors that observedly caused the environmental damage in the Mount Leuser National Park, (1) technical aspect that was due to citronella grass plantation, and (2) economical aspect regarding the local people income and life-needs. Therefore, it is thought that all the development activities and government policy to improve the human life’s wealth shall consider the ethical environmental aspects.

RESEARCH METHODOLOGY

The study used a qualitative approach. Bogdam & Biklen (1997) suggested five characteristics of qualitative research, *i.e.*, (1) it uses natural setting as direct data sources with the researchers as the main instrument, (2) descriptive, (3) it pays more to process than results or products, (4) inductive, and (5) meaningful. Data collection was carried out through direct observation, interview and documentation, and forum group discussion (FGD). All data collected was qualitatively analyzed to reveal and explain the existing phenomena.

The data analysis was carried out through a series of consecutive steps including (1) data description – the obtained data was comprehensively analyzed and categorized, and (2) data analysis – all the categorized data was discussed using an in-depth theoretical thinking and analyzing. The research locus was conducted in the district area of Putri Betung at the Gayo

Lues reGENCY, Aceh – Indonesia (Figure 1) because this district area is well-known for its main local product that is Citronella Oil, and most of the farmers use firewood in the process to obtaining the oil.



FIGURE 1
RESEARCH LOCUS IN THE GAYO LUES REGENCY, ACEH – INDONESIA

RESULT AND DISCUSSION

Deforestation of the Mount Leuser National Park

The deforestation issues are being a serious problem in Indonesia, ranging from illegal logging and forest firing to changing the forest into urban area. Consequently, there is disturbance in the ecosystem balance. Salim (2010) noted that the negative impacts of deforestation within the National Park caused the water resources depletion, soil erosion and flooding, and natural diversity destruction. Further, Lubis (2017) asserted that the main factor of the Mount Leuser National Park deforestation was due to industrialization processes and illegal logging activities. As a consequence of the illegal logging for the need of firewood supply in the obtaining of citronella oil, the local climate changed.

The excessive deforestation has imparted a severe destruction of the existing ecosystem. It has been known that the illegal activities are still going on around the National Park area such as illegal logging and illegal plantations. Surprisingly, there is no restrictive policy by the local government to prevent the appearance of illegal plantation belongs to local people. Law enforcement is usually applied once the harvesting time coming that consequently causes a rise of resistance acts from the local people. Ideally, the monitoring and sterilizing the National Park area from any illegal activities should intensively be conducted by the Law enforcers and stakeholders. It is known that the Mount Leuser National Park is one of the National Parks located in the Sumatera Island that is registered as a World Heritage or Tropical Rainforest Heritage of Sumatera.

According to the observed area in the National Park in the district region of Putri Betung, it was found that around 3,794.05 ha had been used by the local people for the plantation purposes. Table 1 summarizes the area of the Mount Leuser National Park used by the local people in the Putri Betung district area.

No.	Village	Number of family	Total region area (ha)	The area out of region (ha)	The area in region (ha)	Used area in region (ha)	Product	Reason
1	Pungke Jaya	208	8,070.68	0	8,070.68	475.15	Candlenut, Cocoa, Citronella Oil, Coffee, Chili, Tobacco	Life-needs
2	Ramung Musara	333	13,398.77	0	13,398.77	1,180.5	Candlenut, Cocoa, Durian, Citronella Oil, Coffee	Life-needs
3	Uning Pune	85	16,562.49	342.86	16,219.63	299.5	Candlenut, Cocoa	Life-needs
4	Gumpang Lempuh	129	10,083.97	303.44	9,780.53	219.5	Candlenut, Cocoa, Coffee, Rubber	Life-needs
5	Gumpang Pekan	6	7,072.42	448.99	6,623.43	15	Rubber, Cocoa	Life-needs
6	Putri Betung	86	5,132.13	472.04	4,660.09	120.5	Candlenut, Citronella Oil, Rambutan, Durian, Banana, Coffee, Cocoa	Life-needs
7	Meloak Sepakat	107	2,847.91	229.89	2,618.08	177	Banana, Candlenut, Coffee, Cocoa	Life-needs
8	Meloak Aih Ilang	252	3,426.64	0.3	3,426.86	573.5	Candlenut, Cocoa, Rubber	Life-needs
9	Singah Mule	441	3,362.86	0	3,362.86	145.5	Candlenut, Coffee, Rubber	Life-needs
10	Jeret Onom	20	5,544.78	390.54	5,154.24	36	Rubber, Candlenut, Cocoa, Avocado, Orange	Life-needs
11	Kute Lengat	133	6,585.59	103.01	6,482.58	212.5	Candlenut, Cocoa, Rubber	Life-needs
12	Marpunge	98	8,423.8	199.41	8,224.39	217.5	Candlenut, Coffee, Cocoa, Rubber, Petai	Life-needs
13	Pintu Gayo	79	9,174.05	280.92	8,893.13	121.9	Candlenut, Cocoa	Life-needs
Total		1,977	99,686.09	2,771.4	96,914.69	3,794.05		

Source: Gayo Lues Regency in Figures, 2021.

The above data demonstrated that the village of Ramung Musara possessed the worst deforestation. It was observed that around 1,180.5 ha area within the National Park region used by the local people from the Ramung Musara village. This destruction shall promptly be anticipated through giving an educative information to the local people and the citronella oil farmers about the negative impacts of deforestation on the forest sustainability and environments. It was found that most of the forest destructions was due to illegal logging activities by the citronella oil farmers. Figure 2 exhibits the deforestation area recorded at each village in the Putri Betung district.

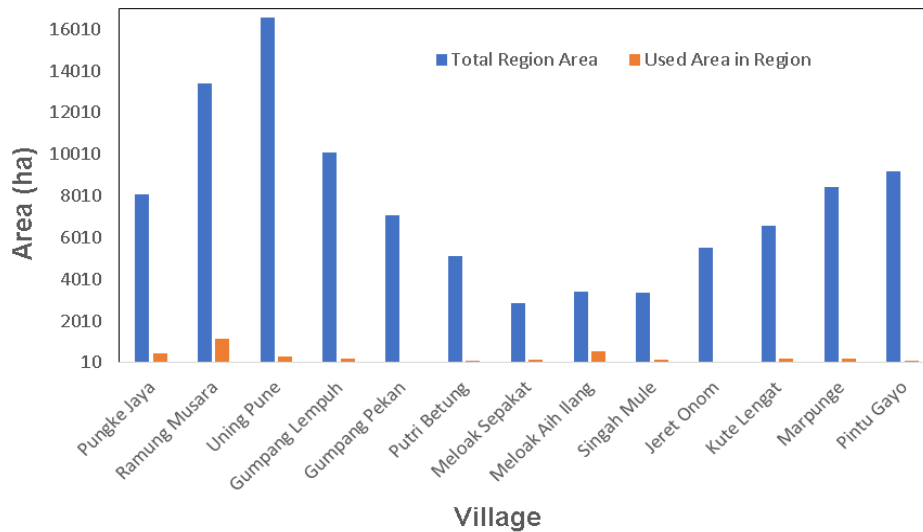


FIGURE 2
DEFORESTATION AREA AT EACH VILLAGE IN THE PUTRI BETUNG DISTRICT.

On the other hand, the economical forest perspective provides a different angle of analysis regarding the number of woods and economical losses because of the citronella grass plantations. Averagely, the existing woods had a diameter of 50 cm and a volumetric number of 90 m³ of each hectare. They worth IDR 800,000 for each meter cubic. The plantation had caused 1,180.5 ha deforestation area with 7,083 woods cut down, confirming the loss of IDR 255 billion each year. Reflecting to the forest destruction and economical losses, the local government of Gayo Lues regency is urgently encouraged to construct a policy of proper plantations around the forest area aligning with the economical values. This is aimed to give an insight about the advantages and disadvantages from the appearance of plantation area around the Mount Leuser National Park to the economical income of local people. Figure 3 shows the graphical representation of the area used for plantations by the local people in the district region of Putri Betung based on the product commodity.

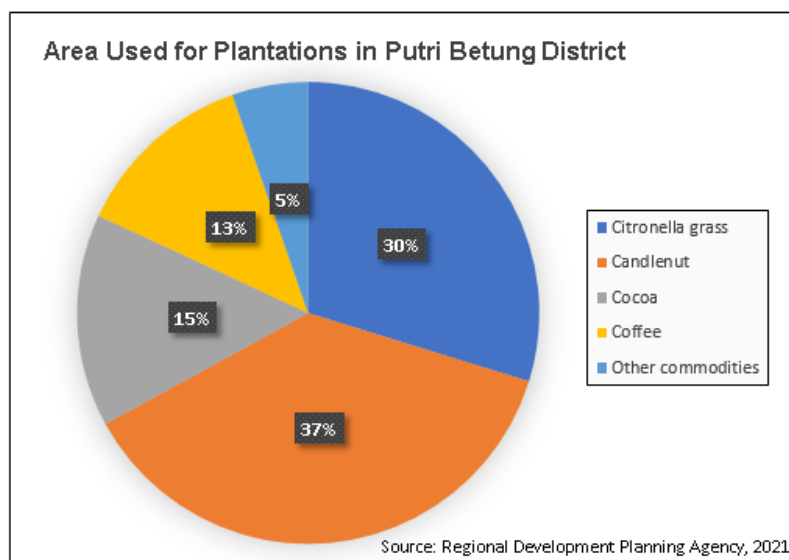


FIGURE 3
GRAPHICAL REPRESENTATION OF THE AREA USED FOR THE PLANTATIONS IN PUTRI BETUNG DISTRICT AREA AS A FUNCTION OF PRODUCT COMMODITY

Local Government Policy

Regional autonomy in the administration of government has brought about changes in the relationship and authority between the central and regional governments, including in the field of environmental protection and management. The policies regarding the environmental management in Indonesia shall refer to Law Number 32 of 2009 concerning the Environmental Protection and Management and Law 41 of 1999 about the Forestry. This is a guarantee of legal certainty to provide protection for everyone. Good forest management cannot be separated from the principles of transparency, accountability and participation, hence, the forest and land management can be utilized by the public. Environmental policy shall refer to the sustainable development goals, balancing the social, economic and environmental developments.

With the enactment of Law Number 23 of 2014 concerning the Regional Government, it is one of the areas of government that is carried out by Regencies and Cities including the Gayo Lues Regency, although the authority for environmental management has not been fully delegated by the Central Government to the Regional Government. In general, it has become the authority of the region, district and city region.

According to these laws, it is the responsibility of the local government of Gayo Lues Regency in preventing the use of natural resources that have an impact on the environmental destructions, especially those which are caused by the citronella oil farmers' activities. The fact shows that the environmental destructions caused by the citronella oil farmers are very dangerous, where some the forests in the Mount Leuser National Park are damaged due to illegal logging and/or burning of land clearing for the citronella grass plantations. The activities of citronella farmers are carried out by the community without paying attention to the preservation of environmental functions. Williams (2007) stated that the rapid deforestation and burning of agricultural land clearing gave an impact on the forest loss.

The Mount Leuser National Park is one of the lungs of the world, indicating that the Mount Leuser National Park is needed and belongs to the world. If the preservation of the forest in the Mount Leuser National Park area is entirely delegated to the Regional Government of Gayo Lues Regency, it is certainly out of its capacity in terms of the budget availability as well as the human resources. The Regional Government of Gayo Lues Regency is always committed to protect and maintain the Mount Leuser National Park. However, due to its limited capacity, many supporting funds and technical assistances from various environmental stakeholders in the world are necessary to ensure the sustainability of the National Park and the local people livelihoods around the forest.

The factors that cause illegal logging conducted by the citronella farming communities which consequently imparts to the deforestation and environmental destructions in Gayo Lues Regency are: 1) limited job vacancies; 2) life-needs; 3) community legal awareness; 4) community ethical/moral that ignores the safety aspects and environmental preservation; and 5) poor law enforcements. This is of great importance to note that the life-needs is the most dominating factor that causes the deforestation and environmental damages. The citronella grass plantations obviously give a severe impact to the forest sustainability, natural diversity and environments. Palmer and co-workers (2014) stated that the human life-needs is fostered in the human interactions with the environment, concerning the natural resources balance, sustainability, and ecosystem preservations.

The sustainability and harmonious interactions between the environmental components depend on the human efforts. Between humans and the environment there is always a reciprocal interaction. The environmental management is a strategy that will be developed in conserving natural resources with the aim of regulating the impact of human activities on the surrounding environments.

CONCLUSION

In forest management, everyone bears obligations and responsibilities to future generations and to each other in one generation by making efforts to preserve the carrying capacity of the ecosystem and improve the quality of the environment, environmental management, substantially containing the principles of local wisdom aspects. In this case, the local government of Gayo Lues Regency must make a solution in managing the citronella harvest in the form of changing the fuel from firewood to natural gas, reducing the firewood needs and leading to a sustainable living environments. Due to the limited capacity of the Regional Government of Gayo Lues Regency, to realize this policy and to be able to preserve the lungs of the world today, it is very necessary to care for the community and be supported by the technical assistances and fundings from many stakeholders throughout the world which are usually provided and managed directly by the community with programs.

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