



Jayapura City Development, Plastic Waste, and Enggros Village Community: A Green Theory Perspective

Ellysabeth Surat Lelan* | Kustanti Hariwati Dalle

INSTITUTION/ AFFILIATION

The International Relations Study
Program, Cenderawasih University,
Jayapura City, Papua, Indonesia.

CORRESPONDENCE

* Ellysabeth, Jalan Kamp Wolker Waena,
Cenderawasih University, Jayapura City,
Papua 99351, Indonesia.

Email: ellysalelan@gmail.com

ABSTRACT

This article aims to examine the impact of plastic waste and the expansion of Jayapura city on the people of Enggros village from a green theory perspective. This perspective, which is often considered one of the counter standpoints in international relations, puts forward an environmentally-grounded perspective from the traditional focus on humans. This study adopted descriptive-qualitative analysis as well as library research methods to collect data. Several findings are summarized: 1) the problem of plastic waste in Enggros village is an environmental crisis that needs to be addressed because it has an impact on the decline in fish populations, difficulty accessing clean water, and contamination of mangrove forests; 2) development in the context of modernization in Jayapura city should prioritize the environmental aspects of sustainable development; 3) cooperation from various stakeholders is required – both state and non-state actors – in overcoming the environmental crisis in Enggros village; 4) strengthening the capacity of the indigenous Enggros is required, considering them as important stewards who will protect their environment in the future.

KEYWORDS

Enggros; Green Theory; Jayapura; Plastic

INTRODUCTION

In the international relations discourse, environmental issues are positioned as secondary to international security and global economic issues. The environment is one of the most crucial foundations for development because it is for human survival. Threats towards the environment are predominantly anthropocentric (from human activities and population pressures), increasing every year (Jackson & Sorensen, 2013). In 1970, the human population was about 3.7 billion. However, this number increased significantly, reaching 7.7 billion in 2020 (Worldometer, 2021). This increase indicates that the human population has increased by 4 billion people over the last 50 years. The latest data in July 2021 depicts an upward trend, where the human population will reach 7.9 billion people (Worldometer, 2021).

The UN Environment Program stated that humans produce as much as 300 million tons of plastic waste each year, of which more than 8 million tons of plastic waste has polluted the oceans (UNEP, 2018). If this continues, it is forecast that by 2050 the oceans will be dominated by waste instead of fish. This hypothesis is based on data that 1 million plastic bottles are consumed worldwide every minute (Chow, 2017). In 2016, out of a total of 480 billion plastic bottles, less than half were recycled. Most other bottles end up in the oceans or usually in landfills and pollute the land (Chow, 2017). In Indonesia, out of 64 million tons of plastic waste, around 3.3 million tons are

dumped into the sea each year which, in turn, results in environmental damage (Nurrochmat & Yulianda, 2021). Undeniably, Indonesia has become the second-largest contributor to plastic waste in the ocean after China (Garcia et al., 2019). Environmental damage occurs not only in big cities but also in areas where Indigenous peoples live, such as forests, rivers, and coastal areas, including Enggros village, Jayapura City.

As one of the Indigenous people of Jayapura, the Enggros community experienced the impact of the increasing population and the massive infrastructure development undertaken by the city government. This experience can be seen from the volume of waste that pollutes the sea, their source of life, which shifts local cultural traditions in earning a living as fishermen. In addition, the Holtekamp bridge construction method, which is considered not to follow the environmental impact assessment, is also a threat to the survival of the Indigenous people of the Enggros. While it is true that infrastructure developments support economic growth in Jayapura, there are complexities behind the grandeur of the developments faced by Indigenous peoples. These complexities remain somewhat unknown to many people (Suryawan & Fahriza, 2020).

This article aims to examine the impact of plastic waste and the development of Jayapura city on the people of Enggros from a green theory perspective. The green theory is considered one of the anti-mainstream

perspectives in international relations because it focuses on the environment rather than anthropocentric. This article divides the structure into several sections—first, a literature review related to green theory. Second, an explanation of the method used in this article. Third, the discussion consists of several sections: The Enggros Village and Jayapura City Development; Causes of Environmental Damage in Enggros Village; Development Impact on the survival of the Enggros Village community; Jayapura City Government's Efforts in Reducing Plastic Waste; and City Development, Plastic Waste and the Community Enggros Village based on Green Perspective. Finally, the authors provide conclusions and a summary of the discussion.

LITERATURE REVIEW: GREEN THEORY

Since the 1950s, researchers from France have written a report on the accumulation of carbon dioxide gases in the atmosphere, which could cause climate change. Unfortunately, the world was paying attention to the famous oil and automotive sectors at that time. In 1962, a woman born in Pennsylvania, who was also a marine biologist, Rachel Carson, wrote a book titled *Silent Spring*, which attempted to raise awareness about how the impact of using fertilizers and pesticides was slowly destroying the world environment (Carson, 2014). The book talked about how chemical companies in the United States were not responsible for the pollution that poisoned

society and how the states and companies were involved in an elaborate cover-up.

As a result, thinkers who were indeed pro-environment vocally expressed criticism of industry and government. Later in 1966, a book called *The Costs of Economic Growth* appeared from an economist, whose opinion was quite controversial, in which the author argued that an increase in Gross Domestic Product (GDP) and real income should be accompanied by a decrease in the level of happiness and social welfare (Quah, 2014). In other words, economic growth can make us less happy. The book discusses how economic growth is not in line with environmental health, where the link between the economy and industry is slowly starting to kill the environment due to pollution and waste. It is the reason why the green perspective, economy, and industry are not in line.

Discussions related to environmental and development issues on the international stage began at the United Nations Conference on Human Environment (Stockholm Conference) in 1972. There were two debates on different assumptions at the meeting: anthropocentric and ecocentric (Eckersley, 2007). First, the anthropocentric assumption states that the main focus of development and civilization is humans, so they should enjoy the benefits. Meanwhile, the ecocentric assumption perceives that humans and the environment are simultaneously the subjects of development benefits.

Second, the anthropocentric assumption states that humans already know enough about managing the environment wisely and adequately. In contrast, the ecocentric assumption asserts that nature is a very complex system and human understanding of nature has limitations. Third, the anthropocentric view considers nature or the environment as providing services (ecosystem services) for human needs. Meanwhile, the ecocentric view believes that humans should protect and restore nature or the environment, not exploit, because humans and the environment go hand-in-hand and need each other.

Fourth, the anthropocentric view believes that problems related to environmental issues can be solved with the involvement of elites because they may have the resources to address such problems. On the other hand, the ecocentric view argues that the elite and the government should pay more attention to Indigenous people in formulating policies because they are considered the main actors. The latter directly protect nature in a place. For example, the Kataibo tribe in Peru is actively making efforts to protect their rainforest area from deforestation and logging activities. This case occurs because the forest area where they live has been reduced to half its size by road construction (Survival International, 2021). In Indonesia, the Awyu tribe, Boven Digoel Regency Papua, is threatened by the expansion of oil palm companies, leading to the destruction of their

customary forest for hunting, gathering, and fishing (Laia, 2021).

Generally speaking, proponents of green theory do not think that the economy and government functions should be stopped. They believe that the harmony created between nature and humans cannot be separated from stable and responsible development, which then emerged the term 'sustainable economic development' based on environmental elements (Eckersley, 2007). This perspective emerged frameworks in international relations related to environmental issues that we know today, such as the Rio Summit 1992, Kyoto Protocol 1997, Paris Agreement 2015, and others. In this article, the green theory perspective will be used to examine the phenomenon of waste in the Enggros village due to the development of Jayapura city.

METHODS

This study used descriptive qualitative analysis to examine plastic waste and the development of Jayapura city on the Enggros village based on a green theory perspective. The data was collected using library research (books, journals, newspapers, webpage on the internet, and relevant reports). In addition, the authors also used geographic information systems and geospatial datasets as well as Google Earth Pro Software to obtain time-lapse imagery of the study site locations.

RESULTS AND DISCUSSION

The Enggros Village and Jayapura City Development

Enggros is a unique village due to its location on the coastal ocean floating above the waters of Youtefa Bay, Jayapura. Even though it is a floating village, all the facilities there are pretty adequate, starting from the police post, clinic, village head office, church, to clean water and electricity facilities. The government of Papua Province is quite concerned about this village because it is considered the beginning of establishing the city of Jayapura, the capital of Papua. Today, the government fosters the Enggros village to become a tourist village that can attract tourists from within and outside the region (Kominfo, 2018).

Enggros village is within the

administration of the Abepura District, Jayapura City. The area is only 4.7 kilometers or 3 percent of the district area, with 149 households (BPS, 2020). The original name of Enggros village is Injros. From the words 'In' (second) and 'Jross' (village), Injros means the second village. In addition, Tasak and Ayer (2019) found that the waters of the Enggros village have an abundance of plankton. Positioned in the middle of the sea in Youtefa Bay, Enggros village influences various parameters of the aquatic environment. With a variety of high community activities from the mainland city of Jayapura, the flow of loads towards the sea from the Acay River also influences the fertility of the waters, which, in turn, provides the abundance of plankton species in the waters.

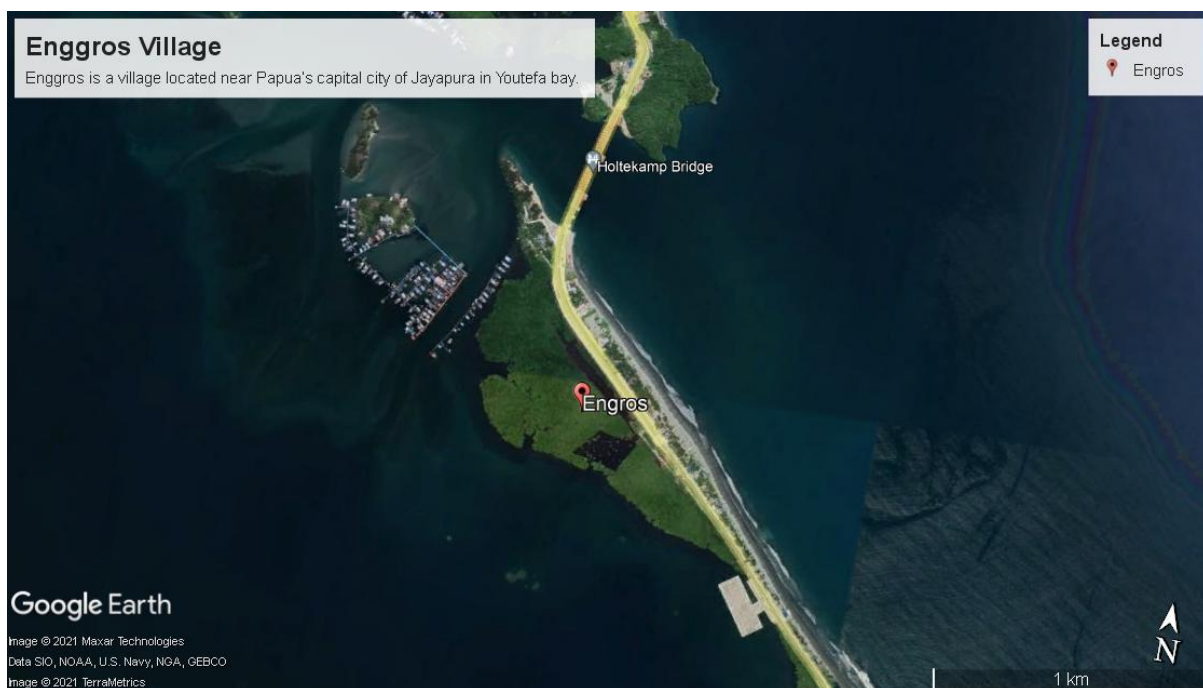


Figure 1. Enggros Village, Jayapura City

Source: MAXAR WorldView Satellite, Google Earth Pro Software Application (2021).

The residents of Enggros village are pretty friendly and wise in their way of life. In contrast to the people of other regions who are known to get drunk and have a strong character, the Enggros community prioritized the values of politeness and mutual respect between residents. Even an unwritten law states that speaking loudly and turning up the radio or television is strictly prohibited in the Enggros village. Likewise, the harsh attitude that men towards women generally carry out is also strongly opposed. If a violation occurs, the punishment applied is social in the form of ostracism or public humiliation. This punishment is very positive, considering that this village is being prepared to become a tourist village (Kominfo, 2018).

As one of the villages located within the administrative area of Jayapura city, Enggros village has experienced the direct impact of the city's rapid development, including being a stopover for plastic waste. It is undeniable that infrastructure development is increasingly being carried out by developing countries in the 21st century, including Indonesia. Today, the physical condition of Jayapura city is also different from 50 years ago when Papua integrated into Indonesia through the implementation of PEPERA (The Act of Free Choice) in 1969. Infrastructure development conducted by the government has changed the face of Jayapura city, one of which is the construction of the Holtekamp Bridge, near the Enggros Village, but unfortunately, it harms the surrounding environment.

Causes of Environmental Damage in Enggros Village

The waste products caused the environmental crisis that occurred in Enggros village. Several factors contribute to the increase in the volume of waste, namely the increasing number of human populations, human factors with their behavior patterns and bad habits, and management and handling problems of waste by the government in Jayapura city.

Since 2014-2018, the population of Jayapura city has been increasing (BPS, 2014; Erwin, 2018). This rise is also in line with the volume of waste in Jayapura city, which is increasing daily, consisting of household, general, and company waste (Ramah, 2019). Even amid the Covid-19 pandemic, when people's activities are primarily at home, the volume of waste in Jayapura city is increasing, especially household waste, such as plastic food and beverage packaging, as shown in the table below.

Table 1. Increase in Waste Volume in Jayapura City

Year	The number of Ton per day
2017	292
2018	302
2019	313
2020	350

Source: Author's compilation from information in Ramah (2019) & (2021a)

The Jayapura City Environment and Hygiene Service further exacerbated this condition because it has limitations in managing and dealing with solid waste problems in the city (Ramah, 2019). Indeed, they have limited facilities and infrastructure, including a limited workforce and a fleet of waste carriers that are not comparable to the volume of waste in Jayapura city. For example, only 47 % of the total daily volume of Jayapura waste can be transported to the Nafri and Koya Koso Final Disposal Sites (TPA) in Abepura District (Ramah, 2019).¹

The behavior of Jayapura citizens has also contributed to environmental problems. In some cases, they have been found disposing of the garbage randomly. The community does not even dispose of waste according to the time that has been regulated through the new Regional Regulation No. 13 of 2019, which is from 9 pm to 4 am. The community should be able to sort their waste according to their respective types, and if they do not want to manage the sorted waste, they can sell them to the Waste Bank. Kamikatsu in Japan, for instance, also known as Zero Waste Town, can be seen as a city that takes the concept of recycling very seriously. Since 2003, the town has had a Zero Waste program, where the townspeople wash, clean, and sort their waste based on 34 categories of waste that

have been categorized. Then they take their waste to a recycling center, where 80% of the debris from the city will be recycled, reused, or composted there (OpenMind, 2020).

Household industrial waste and plastic waste dumped into rivers and seas also contribute to the destruction of coastal areas and even decrease fish catch from fishers and seashell seekers. Jayapura, Sarmi, and Mamberamo Raya areas are included in the coastal area category (Mamta), so that the fisheries/marine sector is one of the primary sources of income. However, as a result of the piles of garbage around Youtefa's waters, local fishers have to go further out to sea, and, as a consequence, this increases their expenses. In addition, the high level of fish consumption by residents of Jayapura makes the need for fish very important, especially the catches of Jayapura fishers which are also exported to other cities such as Makassar, Bali, and Japan (Ramah, 2021b).

One member of the environmental communities in Jayapura City, Fredrik H. A Wanda, observed that this waste problem had threatened the environment of several villages in Jayapura city, including Enggros (Bumi Papua, 2019). Most waste contributors are estimated to come from market areas and residential communities living near the rivers, such as the Acai and Sborhoinyi Kotaraja River. When it rains, the 'tsunami of waste' flows to the Enggros pier and gets stuck in the mangrove trees (Bumi Papua, 2019). One concern is a women's forest in the

¹ The Final Disposal Sites (TPA) in Nafri has been owned by the Jayapura city government since 1996, covering an area of 15 hectares with an Open Dumping operational system. Meanwhile, the second TPA in Koya Koso is assistance from the Papua Public Works Services with a controlled landfill system. See Bumi Papua (2019).

Enggros Village that has been a source of livelihood for many years.

The Impact of Development on the Survival of the People of Enggros

Indonesia is one of the world's lungs and a country that can store carbon because of its large amount of land cover. It also has the 2nd most extensive forest in the world (PPID, 2016). However, it remains possible that Indonesia may not become the largest oxygen-producing country anymore due to massive land clearing in almost all corners of the country. This prediction might happen because the government's development directly impacts the environment, causing environmental degradation. Based on data from the National Disaster Management Agency (BNPB), there are 2,175 disaster events in Indonesia. From that data, 99.08% is an ecological disaster caused by environmental degradation (Karno, 2018).

Since President Joko Widodo took office for his second term, he has accelerated infrastructure development, including roads and bridges. The goal is to connect one region to another, spur economic growth, facilitate the mobility of people and goods, and make the prices of essential commodities more affordable. In this case, the Widodo government has made Papua the main focus of development. One example of development in Papua is the construction of the 1,328-meter Holtekamp Bridge (Hikam, 2019) and a ring road connecting Jayapura City to Muara Tami District to the Skouw border in Wutung, Papua New Guinea.

The construction of the Holtekamp bridge is considered positive by the government from economic and tourism considerations, while the implications are pretty severe for the surrounding environment. The most significant change is perhaps the loss of several points of mangrove forest after the construction of 36 km from the Holtekamp Bridge to Holtekam Koya, Muara Tami District (Suryawan & Fahriza, 2020). The Learning and Working Together website reports that the mangrove forest in Yotefa bay is literally a buffer zone for river and sea abrasion. Concerning this topic, environmental activists, the Port Numbay Green Care Forum (FPPNG), have previously anticipated damage to the ecosystem structure due to this development.

Before the idea of building a ring road and bridge was initiated, the environmental activists rejected the notion because it was considered a threat to the environment and the survival of the Enggros community. FPPNG also held campaigns and social services to save mangrove forests and reduce the amount of plastic waste dumping in Youtefa bay. According to the Chairman of FPPNG, Frederik Wanda, they have been trying to preserve the mangrove since 2009. Regarding the construction of the Holtekamp Bridge, his forum has even written two letters to the Presidential staff office of President Susilo Bambang Yudhoyono and President Joko Widodo. Unfortunately, no response is received (Abubar, 2012).

Exploitation through infrastructure development has posed problems for the Enggros community's survival, who depend on the environment for their lives. The difficulty of accessing clean water is now a significant problem because the places (springs) they often visit around the foot of the mountain have been evicted. Consequently, the water coming from this place turns cloudy or brown due to sedimentation. Some of the springs are dry and polluted by the waste of the Acai river and Entrop river due to industrial and office activities, especially from the Abepura and South Jayapura (Entrop) Districts. This situation forces them to subscribe to the Regional Drinking Water Company (PDAM) to access clean water (Ngelia & Lantipo, 2021).

In addition, one of the sacred places for women in Enggros Village called the 'Women's Forest' is increasingly being questioned for its function due to the damage made by humans (Amindoni, 2021). Indeed, the decrease in mangrove forest area due to development to reclamation indicates the real threat of the customary forest. The government, in this case, should respect and protect the customary forest area that has been there for generations. This issue implies that the contents of Article 6 of Law Number 39 of 1999 concerning Human Rights are not taken seriously by the government because the state prioritizes aspects of modernization rather than local values. Article 6(1) states, "In the interests of upholding human rights, the differences and needs of Indigenous peoples must be

taken into consideration and protected by the law, the public and the Government."

Jayapura City Government's Efforts in Reducing Plastic Waste

Environmental problems encountered by the people of Enggros forced the government to think of various solutions in overcoming the waste problem in the city. The government then came up with several efforts, including the Waste Bank program. The Waste Bank is one of the efforts of the Jayapura government to reduce waste discharge in Jayapura city. Formed on 24 March 2016, it has had 12 community groups by 2019 tasked with collecting waste that has an economic value, such as plastic, paper, and aluminum waste. The waste is grouped according to its type, and 14 types of waste are processed (Bumi Papua, 2019). However, apart from these groups, there is also waste from schools, institutions, or individuals who should bring their waste.

Another policy is to ban the use of plastic in Jayapura city. This policy, applied to shopping centers and shops, came into effect on 1 February 2019, following the Mayor's Instruction No. 1 of 2019 concerning the use of alternative shopping bags to replace plastic bags in Jayapura city. Since the ban, it is not easy to change the habits of people who are used to using plastic bags. However, after socialization and an approach to the community, they finally got used to bringing their containers (tote bags or reusable bags) or used empty boxes provided by local shopping centers (Humas Setda Jayapura City, 2019).

This policy impact reduced the amount of plastic bag waste by 50% in Jayapura City (Ramah, 2020). This effort helps lessen the environmental pollution in Jayapura city. For example, cited from the MITRA Association (the East Indonesia Students' Foreign Relations), in 2016, the average Indonesian citizen used 700 plastic bags, while data from the Central Statistics Agency in 2015 stated that the population of Jayapura city was 275,694 people (Lelan, 2016). Thus, in this context, it can be said that there are around 192 million pieces of plastic bags a year that are used and become waste in Jayapura City (Lelan, 2016).

Basically, the policy of banning the use of plastic has been around since 2002 and was first imposed by the Bangladeshi government. Bangladesh became the first country to ban the use of plastic bags. In 2019, a total of 60 countries have implemented this policy (Business Today, 2019). This policy is considered vital because it is currently estimated that there are more than 500 billion plastic bags, meaning that more than 1 million plastic bags are used every minute. There are also 10 million tons of plastic waste that are dumped into the ocean every year. In 2020, the United States (US) ranked first where each US citizen produces an average of 105 kg of plastic waste per year, while the highest in Asia (South Korea) with an estimated total of 88 kg of plastic waste per year (Vetter, 2020).

Even so, every policy issued by the government has its pros and cons, including banning plastic bags in Jayapura city. If appropriately studied,

this policy is part of the government's strategy through Presidential Regulation no. 83 of 2018 concerning the Handling of Marine Garbage, whose main objective is to reduce around 70% of waste in the Indonesian oceans by 2025. It also encourages changes in people's behavior and the reduction of single-use plastic waste (Nursastri, 2019).

In addition to policies prohibiting the use of plastic bags, several countries have made innovations by managing their plastic waste. Sweden has succeeded in converting waste into a source of electrical energy for 250,000 homes in their country. They even import other waste from Germany or England to increase the production of their electrical energy. This demand is due to the increasing awareness of Swedish citizens to sort their waste based on different types of waste. This achievement is believed to be the key to their successful recycling system. Meanwhile, the Netherlands used plastic waste as material for the construction of particular roads for cyclists in the cities of Zwolle and Giethoorn in 2018 (OpenMind, 2020).

Efforts from the Indonesian government, especially the Jayapura city government, to ban plastic bags are still encountering obstacles. For example, some traders still use plastic bags in locations such as traditional markets or buyers who still ask the traders to cover their groceries with plastic bags. From the merchant's point of view, they do not want to lose buyers, so they still provide plastic bags. This phenomenon indicates that the government policy needs to be

supported, and the awareness of every person is also required to succeed in reducing waste problems in Jayapura city.

City Development, Plastic Waste, and Enggros Village Community Based on Green Perspective

Eckersley (2007, p. 248) underlines that environmental problems have never been considered necessary in international relations. It is because the study of international relations focuses more on high-political issues than low-political ones. However, since the 1970s, many countries have realized the importance of environmental issues so that international environmental cooperation took place and environmental problems eventually became a critical study in international relations.

The issue in Enggros village is an environmental crisis that has to be addressed, mainly because of plastic waste, which has implications for decreasing fish populations, demanding access to clean water, contaminated mangrove forests, and many more. These environmental problems need to be overcome to ensure human existence in the future, but more importantly, to create a livable environment. Also, given that the city of Jayapura is directly adjacent to the territory of the neighboring country Papua New Guinea (PNG), the plastic waste may drift from Jayapura to PNG.

Dugis (2015) argues that the green perspective critiques modernization centered on progressive ideas and is considered environmentally unfriendly. In this regard, the Jayapura city government

should consider the construction of the Holtekamp Bridge, which has sacrificed part of the mangrove forest – acting as a buffer against abrasion of rivers and seas and a source of livelihood for the Enggros community and the surrounding villages. As stated by the Head of the Komnas HAM Papua Office, Frits Ramandey, “we found 28 points of the destruction of mangroves and sago forests, 16 points that threatened the sustainability of mangrove forests, located from the Youtefa Bridge to Holtekamp. Then there are 12 sago forest destruction points” (Cepos Online, 2021). In short, it is fair to say that modernization needs to be considered, but it must not damage the environment and leave a real threat to future generations.

Paterson, cited in Burchill et al. (2001), also argues that industrialization contributes to environmental damage. As previously explained, several springs used by the Enggros community have been dry and polluted with waste due to the activities of several industries, and finally forced the community to subscribe to the regional drinking water company (PDAM). To put it differently, the phenomenon of environmental damage has eroded the local wisdom of the indigenous people of the Enggros and made them dependent on current world developments. The idea of using clean water (PDAM) is truly remarkable, but that would be better if it could go hand-in-hand with the use of springs to maintain the community’s local wisdom.

Dealing with environmental problems in the Enggros village requires cooperation from various parties, both

state and non-state actors. The state plays a pivotal role in introducing regulations to minimize more severe environmental damage and control the pace of modernization of a region. In this context, the Jayapura city government is the one that should play a more active role. It is also required to strengthen the capacity of Indigenous people because they are actors who will play an essential role in protecting the environment. The efforts of local governments to reduce environmental problems, especially plastic waste, have been described previously, but more massive and comprehensive efforts are required in the future. In addition, non-state actors such as non-governmental organizations, green political parties, ecological scientists, Indigenous people must also advocate for environmental issues that occur around Enggros village and its surroundings.

CONCLUSION

This article has examined the impact of plastic waste and the development of Jayapura city on the people of Enggros based on the green theory perspective. The environmental pollution in Enggros village is unavoidable, especially from plastic waste, because of its location in the Yotefa bay area. In this case, the Jayapura city government has made several efforts to reduce waste, starting from socialization related to the use of waste banks to issuing a policy prohibiting the use of single-use plastic bags. However, the efforts are not enough to significantly reduce the amount of waste in the Enggros Village. It is because the facilities

and infrastructure of the waste transport fleet are still limited. The population of Jayapura city is increasing, and the lack of public awareness in Jayapura city in independent waste management, such as household waste management.

Based on the perspective of green theory, unstable and irresponsible development poses an environmental crisis. Green theory criticizes development actors because after experiencing the benefits of development, people tend to be irresponsible for the impacts of development on the surrounding environment. In this case study, the construction of the Holtekamp bridge, which had a positive impact on the mobility of the population in Jayapura city, turned out to harm the indigenous peoples' environment in Enggros village. The decline in mangrove forest land and exacerbated by pollution in Youtefa bay expose the government's weakness in response and to anticipate the impact of development on environmental damage. At the same time, the government has adopted policies related to the protection of indigenous peoples in the 1945 Constitution, Law no. 39 of 1999 on human rights, and the protection of the environment in the Constitution no. 23 of 1997 on environmental management.

This article summarizes several points. First, it addresses the problem of plastic waste in the Enggros village as an environmental crisis that must be resolved immediately. Indeed, this environmental problem has resulted in a decline in fish populations, difficulty in accessing clean water, and contamination of mangrove

forests. Second, development in the context of modernization should prioritize environmental aspects. Learning from the experience of the Holtekamp bridge construction, which has a direct impact on the Enggros community, the development of Jayapura city in the future should focus on the concept of sustainable development goals. Third, it requires cooperation from many stakeholders, both state and non-state actors, to overcome the environmental crisis in Jayapura, including in the Enggros village. Finally, strengthening the capacity of the indigenous people of Enggros needs to be undertaken, perhaps with support from the Ministry of Environment because they are important actors who will protect their environment in the future.

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ABOUT THE AUTHORS

Ellysabeth Surat Lelan completed her study from the International Relations Study Program, Faculty of Social and Political Science, Cenderawasih University, Papua. Her research interests focus on green politics, Indigenous people, and security studies.

Kustanti Hariwati Dalle completed her study from the International Relations Study Program, Faculty of Social and Political Science, Cenderawasih University, Papua. Her research focus on green theory, human security, and global migration.

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