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# Conformity assessment analysis of self-declare ecolabel criteria for Indonesia's tourism villages development in Cikolelet, Banten Province

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**Abstract:** This study aimed to observe the potential of conformity ecolabel self-declaration claims in Cikolelet Tourism Village, Banten Province, Indonesia. The village has an alternative tourism highland nature, unique culture, creative industry, and environmental conservation. Local people and tourism activities impacted the quality of the village, especially waste management. The literature review and field observation were applied to assess the Self Declare Ecolabel Criteria for waste management in Cikolelet using applicable standards and regulations in Indonesia. The scope of waste management applied to the tourism village includes compostable, recyclable, reusable, and waste reduction. According to the result of assessment and observations, generally, Cikolelet Tourism Village has made environmental management efforts. However, some lack of waste management in terms of waste reduction and handling, including sorting, transportation, processing, and final disposal, requires some improvements to comply with environmentally friendly criteria. A strong commitment is required to actualize the scope of the ecolabel self-declaration.

**Keywords:** self-declared ecolabel, sustainable tourism, tourism village.

## Introduction

Indonesia's Ministry of Tourism and Creative Economy has started a time of recovery from the pandemic state. The tourism industry's assignment is to repair Indonesia's tourism image and expand the global market. Indonesia's tourism village (Desa wisata) development initiative is one of the Ministry of Tourism's current priority programs. Nowadays, the village's aspiration to become a tourism village is growing, as shown by the "Indonesian Tourism Village Award" activities in 2021. One thousand eight hundred thirty-one tourism villages took part. This figure surpasses the Ministry of Tourism and Creative Economy's initial aim of 700 villages' participation. For instance, West Sumatra offered 238 tourism villages, South Sulawesi had 190, and Central Java possessed 166 (Kemenparekraf, 2021).

Tourism villages have not only natural and cultural beauty but also distinctive aspects (Rachman, 2014). A tourism village is a collection of attractions, accommodations, and supporting amenities packaged in a pattern of community life that merges with relevant processes and customs to make the village a tourist destination (Rachman & Suprina, 2019; Ningrum & Mustika, 2020). For example, in terms of the creative economy, such as weaving, dance, music, dexterity and martial arts, culinary arts, and traditional architectural styles.

According to the Global Sustainable Tourism Council (GSTC), to increase the quality of tourism villages, it needs to profoundly focus on four pillars and the government's concerns, which are managerial, socio-cultural, economic, and environmental sustainability. Implementing the pillars of sustainable tourism

development is projected to provide value to the local economy in tourist communities. Aside from that, this could improve the community's quality of life, increase local wisdom, and protect the environment (Hutagalung et al, 2021).

Cikolelet Tourism Village is the name of a village that is transforming into a tourist destination due to a diverse range of natural resources, arts and culture, and a thriving creative economy. Cikolelet is located west of the central city of Serang Regency, approximately 42 km from the regency capital and 125 km from Jakarta. It is part of Anyer Cinangka Tourism Zone, Banten Province. The village has a hilly area with natural resources that are utilized as an economic production by the local community for agriculture, plantations, animal husbandry, and tourism. Since 2017, the utilization of the village's resources, such as human and local natural resources for tourism activities, encouraged it to become a tourism village with a community-based tourism concept in its implementation (Rachman & Suprina, 2020).

In addition, Cikolelet Tourism Village has also received assistance programs related to tourism services. These programs include tourism awareness training, homestay management, tour guide training, English language improvement, entrepreneurship, financial management, tour package development, etc. Through the Tourism Village Assistance Program, Cikolelet Tourism Village has been a model for increasing the quality of products and services. Therefore, they experienced an increase in additional economic income while preserving the environment and respecting the socio-cultural community.

Participating in tourism villages to adopt and adapt sustainable tourism can help minimize the negative impacts of climate change since the environmental issues are focused on in the implementation process of activities (Suprina et al, 2019). One of the principles of sustainable tourism is to minimize waste due to tourism activities (Tien et al, 2019). Practically, waste management in many villages still consists of burying, burning, and dumping on unoccupied ground or rivers. These strategies are inefficient and unfriendly to the environment due to the detrimental impact caused by pollution, damage to groundwater supplies and obstruction of river water flows in the surrounding area, which can raise the likelihood of catastrophic events.

They realize it is also difficult to raise public awareness about adequately managing waste. Substantial education and socialization regarding environmentally responsible waste management still need to be improved. They should be followed by government support to start implementing a system so that it becomes not just a working system but also a community culture in the future. one effective way to ensure the system can run consistently is through verification and validation of waste management in tourism villages.

Ecolabel is one of those verification efforts that support the sustainability of the tourism village that already exists in Indonesia. It is a certification for ecologically friendly products or services that are believed to influence the environment positively. Waste management adheres to the ecolabelling principles of reducing, reusing, recycling, and replacing, as well as separating organic and inorganic waste. There are three Ecolabel Types, including (1) Ecolabel Type I: voluntary, multi-criteria based with an independent third party verification process, (2) Ecolabel Type II: self-declared environmental aspect claims with independent third party verification (3) Ecolabel Type III: quantitative information on environmental aspects of the product.

Indonesia has been developing and implementing a type II ecolabel program called "Indonesian Self-Declaration Ecolabel" with a logo, as shown in Figure 1. Indonesian Self-declaration Ecolabel is a program designed by the Ministry of Environment and Forestry (KLHK) to provide customers with information on the

environmental elements of a product manufactured by producers, importers, distributors, retailers, or other interested parties.

(Source: http://perpustakaan.menlhk.go.id; http://sig.id, 2022)
**Figure 1.** Logo of Indonesian Self-Declaration Ecolabel

Ecolabels can be applied to a product or service. Manufacturing products are associated with the manufacturing process or other actions that result in the production of a product. Meanwhile, product services create service items or services such as hotels, travel, tourism, and so on (Utomo, 2021).

Including the ecolabel logo on the consumer side will inform the public and encourage actual actions to alter consumption patterns through purchasing environmentally friendly items. In order to achieve the ideals of a "green lifestyle" and "green consumer,." From the producer's standpoint, adding an ecolabel logo shows gratitude or incentivizes producers who have begun to "green" their goods or services by achieving specified requirements or criteria. Incentives in the form of a positive "image" of environmentally friendly goods and services can boost local and worldwide competitiveness. Ecolabel criteria or standards stimulate innovation and investment in environmentally friendly goods and services.

This study was conducted by making observations in one of the tourism villages in order to identify the potential for implementing ecolabel self-declaration in the tourism village. Even though it is self-declaration, this kind of label can be accounted for and improve its users' reputation due to their efforts to carry out environmentally beneficial actions in line with the specified claims declared. Cikolelet Tourism Village was chosen as the subject of this study because it is an alternative tourism destination in Serang Cikolelet with Puncak Cibaja highland nature, unique cultural, creative industry, and environmental conservation.

From the activities in the tourism villages, waste management is the top priority for meeting the scope of the ecolabel self-declaration. Therefore, this study of ecolabel tourism village's self-declaration is hoped to provide benefits as a reference for tourism villages and the Ministry of Tourism and Creative Economy to improve the quality of the environment and achieve the goal of creating a sustainable tourism ecosystem in Indonesia.

## Methodology

This study was conducted by observations at Cikolelet Tourism Village to identify the potential for implementing ecolabel self-declaration in terms of waste management. Some of the information was collected through primary and secondary data. The primary data used in this study is a qualitative approach, conducted by interview and observation of field visits in a tourism village, which is included in the top 10 ranking in the category of pilot tourism village management based on the award given by the Ministry of Tourism and Creative Economy in 2021. The community

samples included the Head of Cikolelet Village and the Pokdarwis (*kelompok sadar wisata*/local tourism community group), who dedicated themselves to developing Cikolelet tourism activities.

The observation was made to determine the current condition of solid waste, waste management systems, and community involvement in the existence of waste management in Cikolelet Tourism Village, as well as the state of infrastructure that supports a waste management system and the potential for Ecolabel Self-Declaration to be implemented in the village. These activities are carried out by recording and observing field circumstances. An observation form, camera, stationery, and a map of Cikolelet Tourism Village are utilized for performing the observations. Meanwhile, secondary data collection entails researching the literature for information. A literature review was applied to assess the fulfillment of the obtained data with the relevant theory and standard, including books, research findings, papers, and credible articles published on the internet and in mass media.

The in-depth interview research instrument covers aspects of ecolabelling, such as the type of waste produced, how to manage organic and inorganic waste in the tourism village, and the sort of handicrafts produced by economic activity that supports the creation of an inclusive and sustainable tourism village.

Data were analyzed with conformity assessments by using Indonesian regulations and standards, including (1) Government Regulation of the Republic of Indonesia No. 18 of 2008 on waste management systems, including waste reduction and waste disposal, (2) Government Regulation of the Republic of Indonesia No. 81 of 2012 on domestic waste management and household types in the execution of waste clauses 10,11,16, (3) Regulation No. 2 of 2004 of the Minister of Environment and Forestry about the inclusion of the Ecolabel Logo, (4) SNI 19-7030: 2004 Specifications for compost from domestic organic waste are used as the compostable criteria, (5) SNI 3242: 2008 on waste management in settlements, and (6) SNI ISO 14021: 2009-Environmental Labels And Declarations-Self-Declared Environmental Claims are referred to as Ecolabel (Type II Environmental Labeling). These references aid in the development of an in-depth study of the following chapters: (1) determining the type of waste produced, (2) identifying community waste management strategies, and (3) fulfillment of Ecolabel Self-Declaration criteria in Cikolelet Tourism Village.

## Results and Discussion

### *Results*

Cikolelet Tourism Village has four potential criteria for tourism development, namely cultural traditions, traditional arts, natural and man-made tourist items, as well as creative economy product development (EKRAFT), and cuisine. The village has been prosperous in leveraging its potential to create beautiful tourism products such as Etawa goat's milk production, quail egg breeding, oyster mushroom cultivation, emping, and ceplis chips production, local coffee Robusta Karuhun, lemongrass oil distillation, garden and pot relief crafts, catfish waste, and limbat, as well as processed foods made from oyster mushrooms.

The production activities as a source of income for tourism residents may surely boost the village's economic growth. However, they can also negatively influence the environment if not safeguarded and maintained. Production waste is a prominent feature of the manufacturing process. Production waste management must be noticed since it might lead to the appearance of undesirable occurrences. In addition, tourism may affect the ecosystem due to waste generated on-site. Some likely visitors are littering the village. As a result, there should be a strategy to avoid the likelihood of

tourism-related environmental damage. During a field survey visit, several sorts of waste were discovered near Cikolelet Community. The waste categories in Cikolelet Village are classified by area, which means they are clustered based on the local community-based activities that create typical trash or rubbish, as shown in Table 1.

**Table 1.** Types of Waste/Waste Produced in Cikolelet Tourism Village

| Area | Local Community-based Activities | Types of Waste/Garbage |
|---|---|---|
| Area 1 | Rice fields, and other crops | Dry leaves and twigs, rotten fruit/unfit to eat, straw and husk generated from paddy harvesting |
| Area 2 | Farm:<br>a. buffalo<br>b. etawa goat<br>c. broiler chicken<br>d. catfish farming | Livestock manure, plastic and used feed sacks |
| Area 3 | Residential houses | Food waste such as rice, sticky rice, coconut dregs, vegetable waste, tea and coffee dregs, cardboard, plastic packaging, bottles, cans, paper, dried leaves and plants, as well as waste from detergents and soaps used by residents for daily toilet needs. |
| | Office and School | |
| | Homestays and cottages | |
| | Restaurant/cafeteria/stall | |
| Area 4 | Tourist attraction site | Plastic waste, packaging, bottles, cans, paper and dry leaves and plants |
| Area 5 | Home industry center:<br>a. coconut,<br>b. citronella oil,<br>c. honey,<br>d. mold,<br>e. chips<br>f. tofu and tempeh<br>g. sugar palm fruit<br>h. pottery making and water hyacinth crafts<br>i. plastic crafts | Coconut fibers and old shells, refined lemongrass leaves, leftover mushroom cultivation media made of sawdust (planting media left over from harvest or production failures), roasted emping skin, remnants of pottery materials, water hyacinth, plastic unfit for production, as well as soybean dregs. |

(Source: data processing, 2022)

Based on observation, Table 1 shows that the local community-based activities are grouped according to the similar activities that generate typical solid waste/garbage. Following observation and discussion, each area has a certain type of solid waste, which is detailed in the following paragraphs.

Area 1 consists of activities in the fields and other crops that yield dried leaves and twigs, rotting fruit (unfit to consume), and straw and husk formed as harvest trash. According to Moraes et al (2014) the main waste generated from rice fields activities are the straw and the husk. During the harvest, rice straw is separated from the grain, while the husk is a coating or protective layer formed during grain growth.

Rice straw is commonly burned in the open as a cheap means of disposal as well as to prevent the spread of fungi in the field (Kadam et al, 2000). Meanwhile, for the husk, because of its low nutritional properties and high silica content, it is unfit for animal feed and cannot be used in feed production (Alfaro et al, 2013). Therefore, almost all of this material was used for crops and river banks, increasing the potential for pollution caused by this residue. However, Lim et al. (2012) stated that the practice of random disposal and open space burning has decreased, and there were alternatives explored and developed to manage rice husk, i.e., biomass for power generation. Nevertheless, although the current waste disposal process from rice fields and other crops is still done with burning, in the future, Cikolelet Tourism Village is expected to implement other alternatives to manage the rice husk.

Area 2 includes farm activities from livestock such as buffalo, etawa goat, broiler chicken, and catfish, with livestock manure, plastic, and used feed sacks as types of waste being observed. Animal wastes are pollutants of increasing concern because they have the potential to contaminate both surface and groundwater (Gerba & Pepper, 2009). Adejumo & Adebiyi (2020) stated that animal production solid wastes which are generated from the production of livestock for whatever purposes, such as bedding/litter, animal carcasses, damaged feeders, water-troughs, etc. The wastes produced from livestock farms in Cikolelet Tourism Village are in line with the proposed idea of Balaman (2019), who concludes that the most common sources of animal wastes include dairy shed effluent (containing urine, dung, wash water, residual milk, and waste feed), dairy manure, poultry litter (a mix of manure, water, spilled feed, feathers, and bedding material), renderings, and other wastes from livestock finishing operations. However, from the observation, only three kinds of main wastes were found, which are manure, plastics, and used feed sacks, due to the size of farming, which is limited to personal ownership rather than a big industry.

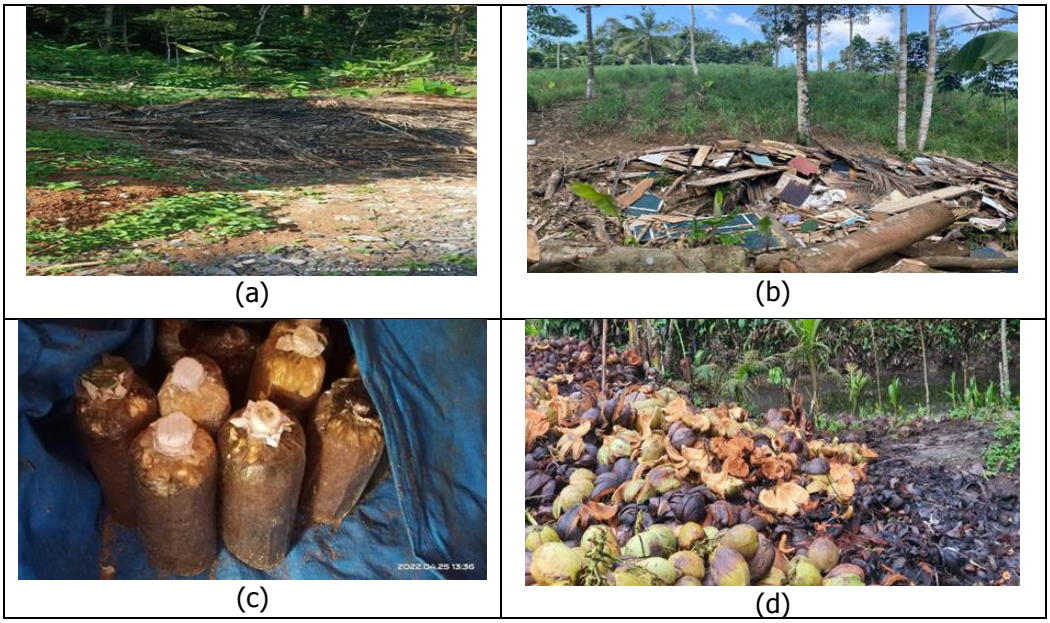
Area 3: In Area 3, there are four sources of generating waste namely residential houses, office and school, homestays and cottages, as well as restaurants, cafeterias and stalls. According to Damanhuri et al (2009), solid waste from residential houses consists of organic waste, inorganic waste (plastics, glass, paper, textiles, rubber, metals), and others. According to the observations, the waste generated from residential houses in Cikolelet Tourism Village was cardboard, plastic packaging, bottles, cans, paper, dried leaves, and plants, as well as from detergents and soaps. In contrast, for food waste from restaurants, cafeterias, and stalls, Cikolelet Tourism Village produces leftover rice, sticky rice, coconut dregs, vegetable waste, and tea and coffee dregs. Offices, schools, homestays, and cottages generate comparable quantities of waste to residential dwellings. People have begun to bring their shopping bags and have made efforts to decrease plastic consumption, following the fact that society's regulation on restricting disposable plastic trash has a good influence on decreasing plastic waste (Agustina & Aprinica, 2021).

Area 4 is Puncak Cibaja Highland Nature and other distinctive cultural tourist attractions, which are among the well-known attractions in Cikolelet Tourism Village. The growing number of visitors results in increased traffic, noise, and air pollution, as well as a growing volume of waste requiring collection and disposal (Marks, 2008). As a result, it contains rubbish or wastes that tourists, such as plastic waste, packaging, bottles, cans, and paper, primarily generate. Plants and dried leaves are also two more sorts of garbage. Plastic waste, as we know, takes 200-1000 years to degrade. Plastic garbage has the potential to pollute soil, groundwater, and subterranean organisms. Even when consumed by animals or plants, PCB chemicals (Polychlorinated Biphenyls) cannot be degraded (Purwaringrum in Qodriyatun, 2018). Previously, some regulations

governed tourist activities and enforced them through fines or sanctions because tourist activities generated much waste. Meanwhile, the latter was done through incentives, education programs, offered guidelines, facility upgrades, and maintenance enhancement (Needham & Rollins, 2009; Needham & Szuster, 2011).

Area 5 consists of many different types of potential home industries which have been raised at Cikolelet Tourism Village. Coconut, citronella oil, honey, mold, chips, soybean tofu and tempeh, sugar palm, pottery production, water hyacinth crafts, and plastic handicrafts are areas centered in Area 5. During the observation, it was discovered that the industries left some types of garbage/waste, such as a bulk of coconut fibers and old shells, delicate lemongrass leaves, leftover mushroom cultivation media made of sawdust (planting media left over from harvest or production failures), roasted emping skin, pottery remnants, water hyacinth, unfit for production plastic, and soybean dregs. Even though they are small businesses, they continue to create their items regularly. Each firm generates different sorts and amounts of waste. The scale of the industry, the customer, and the production strategy are the primary elements that may influence the type of trash (Cheaper Waste, 2021). For example, according to Redmond et al. (2008) the type of waste produced by small and medium enterprises incorporates cardboard, steel, plastics, wood, batteries, rubber, and liquids.

Furthermore, the findings divided the waste produced at Cikolelet Tourism Village into three (three) types: (1) organic waste, including livestock manure, leaves, dry twigs, rotten/unfit to eat fruit, straw and husk generated from paddy harvesting, food waste such as rice, sticky rice, coconut dregs, vegetable waste, tea and coffee dregs, coconut fibers and old shells, leftover lemongrass leaves refining, the rest of the growing media for mushroom cultivation is made of sawdust, usually harvested or failed production, emping skin, remnants of pottery, water hyacinth, and soybean dregs, (2) non-organic waste, including plastic packaging, bottles, cans, sacks, (3) domestic waste, including waste from detergent and soap for daily toilet needs.




(Source: Observation result, 2022)

**Figure 1.** (a) Waste generated from citronella oil production; (b) Domestic waste; (c) Waste generated from mushroom cultivation; (d) Waste generated from coconut shell from home industries

Figure 1 shows the observation result that depicts trash created from some industries and domestic activity such as citronella oil manufacturing, domestic waste, mushroom cultivation medium waste that is no longer to be produced and coconut shells that are abandoned and dumped in the opened area. Although the conditions around the roadways are generally well-organized, leaf litter can still be encountered. According to findings of the interview, the majority of local people dispose of rubbish by burning and discarding waste into empty land.

## Discussion

### Identifying Community Waste Management Strategies in Cikolelet Tourism Village

According to the Law of the Republic of Indonesia No. 18 of 2008, waste management is a systematic, comprehensive, and sustainable activity encompassing garbage reduction and handling. Waste management consists of decreasing and managing garbage. Waste reduction efforts include things: (a) minimizing waste creation, (b) recycling waste, and (c) reusing waste. Meanwhile, waste handling activities include (a) waste sorting, (b) waste collecting, (c) waste transportation, (d) waste processing, which involves modifying the features, content, and volume of the trash, and (e) final processing. According to SNI 3242: 2008, waste management in settlements must establish a local waste management system by adopting organic and inorganic waste sorting, applying 3R (Reuse, Reduce & Recycle) procedures at the source and final disposal, and handling residues by municipal waste managers.

Furthermore, Government Regulation of the Republic of Indonesia No. 81 of 2012 on domestic waste management and household types in the execution of waste clause 10 (1) The implementation of waste management includes (a) waste reduction and (b) waste handling. Clause 11 (1), waste reduction, includes (a) waste generation restriction, (b) waste recycling, and (c) waste reduction. Clause 16 waste handling includes (a) sorting, (b) collection, (c) transportation, (d) processing, and (e) final disposal.

Today's waste management encounters a set of challenging issues. The waste problem is not new in Indonesia, particularly in tourist areas. For instance, in March 2018, the world observed the condition of Bali's waterways filled with plastic waste,

according to a video recorded by British diver Rich Horner and published on his YouTube account. It can be seen in the video taken at the Manta Point Nusa Penida diving site that the environment in Bali's sea waters was highly concerning at that time since they were littered with plastic waste. These issues could certainly be a lesson learned for the Indonesian tourist sector in order to create and develop an ecosystem of sustainable tourism in Indonesia.

The Ministry of Tourism and Creative Economy/Agency for Tourism and Creative Economy (Kemenparekraf/Baparekraf) continues to foster the development of tourism villages in Indonesia so that the villages can become a locomotive for improving the welfare of local people. As a result, the aforementioned waste issue should be of great concern in this research on Cikolelet Tourism Village. The following are the approaches of waste management applied at Cikolelet Tourism Village, classified by area on local community-based activities.

**Table 2**. Existing Community Waste Management Strategies in Cikolelet Tourism Village

| Waste Management System | Activities | Area 1 (Agriculture) | Area 2 (Farm) | Area 3 (Settlement) | Area 4 (Tourist Attraction) | Area 5 (Home Industry) |
|---|---|---|---|---|---|---|
| Waste reduction | Waste generation restriction | X | X | X | X | X |
| | Waste recycling | X | X | √ | √ | √ |
| | Waste reuse | X | X | X | X | X |
| Waste handling | Waste sorting | X | X | √ | √ | √ |
| | Waste collection | √ | √ | √ | √ | √ |
| | Waste transport | X | X | X | X | X |
| | Waste processing | X | X | X | X | X |
| | Final Disposal | X | X | X | X | X |

Remark: x means that the activity is not found, √ means that the activity is found in Cikolelet Village
(Source: Primary Data 2022)

Generally, from the observation, Cikolelet Tourism Village has conducted environmental management efforts. However, there are still some problems related to waste management in terms of waste reduction and handling that require improvements to comply with environmentally friendly criteria. These issues are affected by the high rate of waste products with a minimum capacity of proper waste storage, the low degree of public knowledge (human behavior), and issues with final disposal operations, which invariably produce further issues.

Table 2 shows that the majority area has done waste sorting and collection as a part of their waste handling effort, but they have yet to reduce waste. A comprehensive description of waste management in Cikolelet Tourism Village is as follows.

Area 1: In rice fields and other agricultural areas, there are no waste reduction activities such as waste generation restriction, waste recycling, and waste reuse. They are undertaking waste collection and waste handling. The garbage from rice fields and other crops is collected in this area without specific storage or sorting. The local community still lacks waste processing facilities, as required by applicable regulations and standards. The existing waste processing for agricultural processing residue, a large number of dried leaves and twigs, is carried out by burning, which is just left in the open area. This result is harmful to the environment due to the immediate release of greenhouse gasses into the atmosphere produced by its natural decay. Much agricultural waste can be utilized as the substrate of biogas (biomethane and biohydrogen) production as an alternative energy source. Furthermore, it is one of the methods for reducing the number of environmental pollutants, which has been a popular issue recently, particularly concerning the notion of renewable energy

(Widjaja et al, 2017). As a result, biogas generation is appropriate for small power consumption in villages; hence, the community may fulfill its own energy demands without relying on fossil fuels or other nonrenewable energy supplies (Wahyuni et al, 2018).

Area 2: Waste management activities in Area 2 are comparable to Area 1. There are also no activities for waste reduction, such as waste generation restriction, waste recycling, and waste reuse for agricultural operations involving animals such as buffalo, Etawa goat, chicken, and catfish. They do manual trash collection on animal manure, plastic, and old feed sacks, with no special rubbish collection or storage handling. Furthermore, for the process, the easily-decomposed waste from farms is left alone until it becomes humus. When washing the cage area, dirty water flows into the waterways. In terms of waste handling, there are no sorting and final disposal activities. The composting process can be easily carried out with direct practice. Direct training from experts can be done in collaboration with the Cikolelet plantation office or from the nearest village. For plastic waste, recycling to make a handicraft will be the best option in a tourist village to attract tourist interest and to get higher-value products. With the development of new technologies and increasing concerns about environmental impact, animal manure is viewed as a viable source for the production of biogas, heat, electricity, and soil amendment through aerobic bio stabilization or thermal conversions such as gasification or pyrolysis (MacDonald et al, 2009; Muha et al, 2015).

Area 3: Society is already aware of basic waste handling, including sorting and collection. Waste management may be encountered in this area, covering residential houses, offices, schools, homestays, and cottages, as well as restaurants, cafeterias, and stalls. For instance, they sort and collect food waste such as rice, sticky rice, coconut dregs, vegetable trash, tea and coffee dregs, cardboard, plastic packaging, bottles, cans, paper, dried leaves, and plants. Other wastes are generated from detergents and soaps that inhabitants use for everyday toilet requirements, and these are collected from each family, office, school, shop owner, and hostel. This garbage is sorted, collected, and dumped at Pokdarwis to be used as raw material in handicrafts. Each household has a location/garbage hole where food waste and dry leaves can be disposed of behind or to the side of the house. Aside from the two domestic wastes, waste from detergent and soap is not treated differently. They have conducted waste recycling by making handicraft products from non-organic waste such as drinks/bottles and plastic packaging. Unfortunately, they still need to complete all waste reduction procedures, such as waste generation reductions, reuse, transportation, waste processing, and final disposal. These consequences will contribute to global warming and pollution (Shukor et al, 2018). Organic garbage, often known as green waste, is defined as biodegradable organic material (Kadir et al, 2016). Natural sources are used to create organic material. Essentially, any residual kitchen waste (vegetable peelings, food, tea bags, and egg shells), agro-waste (food and beverage processing waste, dairy products, animal waste, and crops), grass clippings, dried leaves, and timber can degrade naturally and can be used as home-made compost (Hartono et al, 2015; Ng & Yusoff, 2015; Kadir et al, 2016).

Area 4: Regarding waste reduction, the tourism village administration has attempted to undertake some simple waste management in tourist attractions, particularly at Cibaja highland. They already do waste sorting and collecting for plastic waste packaging, bottles, cans, paper, and leaves. They are distinct from the person in charge of the tourist attraction. In Pokdarwis, waste such as cans or bottle containers is collected and used as raw material for handicrafts. The remaining litter, which

consists of leaves and twigs, is left to decay into humus. They do not have trash transport, waste processing, or waste disposal activities. In this regard, they collaborate with other parties to transport, process, and dispose of it. According to Guerrero et al. (2013) and Septiani et al. (2019), Tourist attraction management can involve all stakeholders in waste management, including the government and society. Therefore, the participation of all parties is required to decrease the use of disposable plastics in tourist attractions. Following this, policies were enacted to reduce the environmental effect of using plastic bags. For instance, as a part of managing waste systems, Bali Provincial Government then issued a more thorough regulation, which the Governor of Bali managing regulation Number 97 2018 about the Limitation of Single-Use Plastic Waste, which includes restrictions on plastic bags, polystyrene (Styrofoam), and plastic straws (Agustina & Aprinica, 2021).

Area 5: Cikolelet has several potential home industries distributed around the community. This area has the same waste reduction and handling activities as the others. For waste handling, They sort and collect residual waste from the existing home business, such as old coconut fibers and shells, distilled lemongrass leaves, and the prior mushroom growing media formed from sawdust, which resulted after harvest time or due to unsuccessful production. There is roasted emping skin, pottery material remains, hyacinths, unsuitable plastic for manufacture, and soybean pulp. The remaining trash is left to decompose into humus surrounding the manufacturing location. However, if residual trash from home industries is abundant and unmanaged, it will be hazardous to the environment. When small enterprises do not see their operations as having a substantial environmental effect (McKeiver and Gadenne, 2005), they may be discouraged from engaging in environmental initiatives. An attitude that considers a business that creates less product waste is unimportant or does not need to implement strong environmental policies can impede attempts to decrease and adequately dispose of garbage (Redmond et al, 2008).

Based on observations in areas 3, 4, and 5, Cikolelet is trying to recycle waste. All waste is collected from residential houses, offices, schools, homestays, cottages, restaurants, cafeterias, stalls, and tourist attractions. Plastic waste packaging, bottles, cans, and paper are processed, collected, and deposited at Pokdarwis before being recycled to be used as raw material in handicrafts. This activity has increased inhabitants' output in terms of entrepreneurship and innovation. As a result, the souvenir will provide income for the people of the tourist village while also boosting the village's economic growth.

(Source: Observation result, 2022)

**Figure 2.** Handicrafts products made from recycled materials at Cikolelet Tourism Village.

### *Ecolabel Self-Declaration Criteria Fulfillment in Cikolelet Tourism Village*

The observation in Cikolelet village reveals several facts that are meant to conclude that there is a high possibility for improving waste management and subsequently claimed to be a self-declared ecolabel. This case is because the waste management applied at Cikolelet remains in discrepancy with applicable standards, as shown in Table 2. To minimize the gap, it is essential to understand whether prospective activities might support self-declaration ecolabel, as well as how to implement the self-declaration approach. Table 3 includes the potential products/services that Cikolelet can provide for self-declared ecolabel claims and that have been effectively identified in certain areas based on garbage and waste categories seen during field observation.

**Table 3.** Potential Activities that Support Self Declare Ecolabel Claim

| Local Community-based Activities Area | Types of Waste/Garbage | Potential Products/ Service | Potential Activities that Support Self Declare Ecolabel Claim |
|---|---|---|---|
| Area 1 (Agriculture) | Dry leaves and twigs, rotten fruit/unfit to eat, straw and husk generated from paddy harvesting | Compost | Compostable<br>Recyclable<br>Waste reduction |
| | | Handicraft | Recyclable<br>Waste reduction |
| Area 2 (Farm) | Livestock manure | Compost | Compostable<br>Recyclable<br>Waste reduction |
| | Plastic and used feed sacks | Handicraft | Reusable<br>Recyclable<br>Waste reduction |
| Area 3 (Settlement) | Food waste such as rice, sticky rice,coconut dregs,<br>vegetable waste, tea and coffee dregs | Compost | Compostable<br>Waste reduction |
| | Cardboard, plastic packaging, bottles, cans, paper, dried leaves and plants | Handicraft | Reusable<br>Recyclable |
| Area 4 (Tourist Attraction) | Plastic waste, packaging, bottles, cans, paper and dry leaves and plants | Handicraft | Reuseable<br>Recyclable<br>Waste reduction |
| | Dry leaves and plants | Compost | Compostable<br>Waste reduction |

| Local Community-based Activities Area | Types of Waste/Garbage | Potential Products/ Service | Potential Activities that Support Self Declare Ecolabel Claim |
|---|---|---|---|
| Area 5 (Home industry) | Refined lemongrass leaves, leftover mushroom cultivation media made of sawdust (planting media left over from harvest or production failures), roasted emping skin, | Handicraft | Compostable Waste Reduction |
| | Coconut fibers and old shells, water hyacinth, plastic unfit for production, remnants of pottery materials, | Handicraft | Compostable Recyclable Waste reduction |
| | Soybean dregs | Compost | |

(Source: Primary Data, 2022)

Cikolelet Village Tourism is able to effectively execute four optional Ecolabel Self-Declaration claims. These are compostable, recyclable, reusable, and waste reduction. Moreover, compost and handicraft products will be produced by those activities as well. The detailed explanation in terms of options that are possible to be applied by Cikolelet Tourism Village in fulfilling the self-declaration criteria is as follows.

## *Compostable*

SNI 19-7030: 2004 specifications for compost from residential organic waste, shown in Table 4, can be used as a self-assessment checklist if compostable tourism products are going to be labeled by Ecolabel.

According to field observations at Cikolelet Tourism Village, most of the waste generated is organic from the five existing areas. Because organic waste is generated in all areas, this biodegradable self-declaration is appropriate to be claimed. There needs to be a proper composting process in the village to generate high-quality and commercial compost. Therefore, farm waste and agricultural leftovers are left for litter to decompose naturally until it becomes humus. Hence, they do not have data to be assessed. Criteria and indicators for compostable products can be obtained from laboratory analyses. They have to test their compost in an accredited KAN laboratory to obtain test results that can be verified. Thus, if they compost regularly, they undertake a series of tests on the compost produced under the standards and indicators of SNI 19-7030: 2004 for proper compost processing, as listed in Table 4.

**Table 4**. Compostable Criteria's Assessment Checklists

| Criteria and Indicators | Fulfillment to SNI Criteria |
|---|---|
| Criteria: Compost maturity,<br>Indicators<br>1. C/N-ratio has a value (10-20): 1 | - |

| | |
|---|---|
| 2. temperature according to groundwater temperature<br>3. blackish and soil-like texture<br>4. smells of soil | |
| Criteria: Does not protect foreign materials,<br>Indicators:<br>1. Does not contain all impurities or inorganic materials such as metals, cups, plastics and rubber<br>2. Does not contain environmental pollutants such as heavy metal compounds, B3, and organic chemicals such as pesticides | - |
| Criteria: Micro-elements<br>Indicators: Micro-elements of these values are issued based on the concentration of elements essential for plant growth (specifically Cu, Mo, Zn) and heavy metals that can harm humans and the environment depending on maximum concentration allowed in the soil | - |
| Criteria: Pathogenic organisms<br>Indicators:<br>1. Pathogenic organisms should not exceed the following limits:<br>2. Fecal Coli: 1000 MPN/gr total solid in dry state<br>3. Salmonella sp.: 3 MPN/4 gr total solid in dry state | - |
| Criteria: organic polluters<br>Indicators: compost made does not carry the active ingredients of pesticides | - |
| Criteria: Organic matter<br>Indicators: Organic matter content in compost is at least 27% | - |
| Criteria: water content<br>Indicators: moisture content of organic matter in compost is at least 27% | - |
| Criteria: parameter as an indicator of agronomic value<br>Indicators: pH (must be neutral), concentration of N, P2O5, K2O (depending on its use), water binding ability. | - |

Source: Primary Data 2022 based om SNI 19-7030: 2004

### *Recyclable*

Recyclable criteria are characteristics of products, packaging, or related components that can be diverted from the waste stream through processes and programs that are available and can be collected, processed, and returned for use. Returned materials are in the form of raw materials or products.

According to observations in Cikolelet Tourism Village, organic and non-organic waste is produced by residential houses, offices, schools, homestays, and cottages, as well as restaurants, cafeterias, stalls, tourist attractions, and home industries. Thus, recyclable self-declaration is possible. To begin, cardboard, plastic packaging, bottles, cans, or paper must be properly collected, sorted, and transported. They must improve the recycling process, particularly along the value chain, from the initial process of plastic collecting to the manufacture and sale of new items. Based on observations, CTV recycled products already fulfill some of the recyclable criteria specified in SNI ISO 14021: 2009. Recyclable self-declaration is also viable, particularly for organic materials used in handicraft items, such as indoor and outdoor bamboo trash cans, which can be used for waste storage and processing. It can be seen in Table 5 that recycling

processes are still becoming an issue due to the unavailability of recycling facilities to accommodate materials that have been collected. Individuals continue to be involved in recycling activities, such as recycling waste to make handicrafts.

Then, suppose they have done it regularly. In that case, they will conduct a series of tests on the recyclables according to the criteria and indicators of SNI ISO 14021: 2009 regarding recyclable processing, as seen in Table 5.

**Table 5.** Recyclable Criteria's Assessment Tools

| Criteria and Indicators | Fulfillment to SNI Criteria |
|---|---|
| Criteria: Garbage/Waste Management<br>Indicators:<br>Collection, sorting, and transport systems for moving materials from their source to recycling facilities are easily available | Yes |
| Criteria: Recycling Process<br>Indicators:<br>Availability of recycling facilities to accommodate materials that have been collected | No |
| Criteria: Output<br>Indicators :<br>Products claimed to have been collected and recycled | Yes |

(Source: Primary Data 2022 based on SNI ISO 14021: 2009)

*Reusable*

Reusable is the characteristic of a product or packaging made and designed to be used again, more than once, or used throughout its life cycle for the same purpose.

According to observations in Cikolelet Tourism Village, organic and non-organic waste is produced by residential houses, offices, schools, homestays, and cottages, as well as restaurants, cafeterias, stalls, tourist attractions, and home industries. Current conditions in Cikolelet Village have yet to lead to reusable activities since there is no program for collecting discarded items or packaging. Cikolelet Village still needs to be enhanced to give alternative actions for product collection programs or packaging that has been used and reuse the product or packaging in order to meet product collection program criteria.

**Table 6**. Reusable Criteria's Assessment Tools

| Criteria and Indicators | Fulfillment to SNI Criteria |
|---|---|
| Criteria: product collection program<br>Indicators:<br>There is a product collection program or packaging that has been used and reuse the product or packaging.<br>There are facilities or products that allow buyers to reuse products or packaging | No |
| Criteria: | No |

| Criteria and Indicators | Fulfillment to SNI Criteria |
|---|---|
| If the product collection program or packaging has been used, or facilities for reusing purposes are not easily available to most buyers, prospective buyers and users of products in the area where the products or packaging are sold, then the following must be fulfilled:<br>Indicators:<br>1. claims of reuse ability must be used with certain qualifications;<br>2. claims with such qualifications must adequately convey the limitations of the existence of the program or collection facilities; | |

(Source: Primary Data 2022 based on SNI ISO 14021: 2009)

### *Waste Reduction*

Waste reduction is the decrease of the amount of materials entering the waste stream as a result of changes in process products or packaging. Besides, waste reduction can also be defined as waste minimization from sources and the reuse of waste through recycling (Rosenfeld et al, 2011).

According to observations at Cikolelet Tourism Village, all waste generated by the five current areas has the potential to be reduced. All activity areas generate organic waste that can be composted, reused, and recycled for non-organic and domestic waste, implying that waste reduction is ongoing. They require a regular appropriate waste management system that can be applied to all types of waste and an understanding of how to properly apply all waste management procedures. Cikolelet Village is currently partially implementing waste reduction. This village has implemented waste reduction through waste processing processes such as farm and agricultural waste, a natural composting process carried out into humus. In addition, Cikolelet village community has collaborated with Pokdarwis to utilize waste for a better purpose, where the waste produced will be made as handicrafts. However, the criteria for reducing waste have yet to be supported by data on waste generation, so the amount of waste that has been reduced cannot be calculated. Waste reduction can be processed as SNI ISO 14021: 2009 in Table 7.

**Table 7.** Waste Reduction Criteria's Assessment Tools

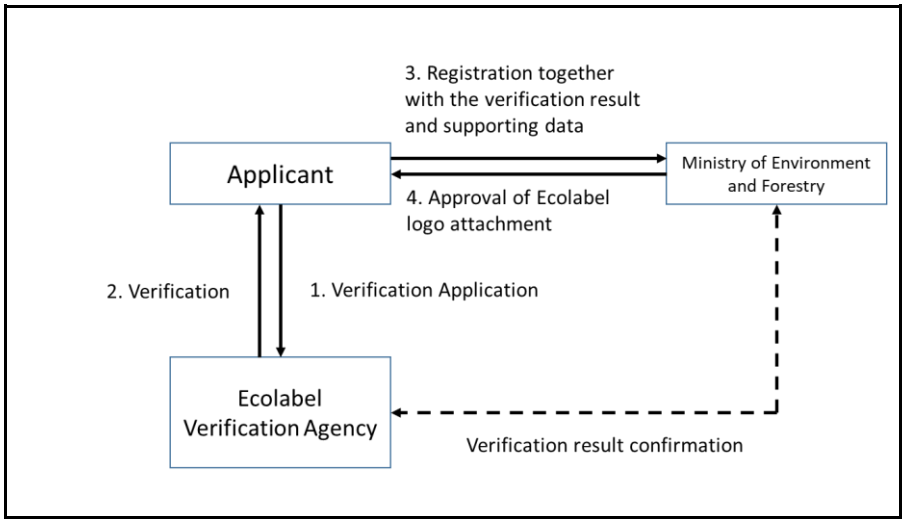
| Criteria and Indicators | Fulfilments to SNI Criteria |
|---|---|
| Criteria:<br>All waste reduction claims must meet the comparison claims, namely: must be evaluated against one or more of the following: previous processes that the organization has, previous products owned by that organization, processes in other organizations, products on other organizations | No |
| Comparison claims covering the environmental aspect of the product's life cycle must be quantified and calculated with the same unit of measure, based on the same functional unit, and calculated at intervals of appropriate time | No |

| | |
|---|---|
| Reduction of waste from products and packaging may include reduction of waste incurred in production, distribution, stages of use and disposal. | Yes |
| Waste reduction claims can include reduction of water content in solid waste, and reduction of mass through the sewage treatment process. | No |
| Calculation of waste reduction from the process does not include the reuse of materials in the process (*in-process re-utilization*) such as reworking (*rework*), re-milling (*regrind*) or the remaining materials (*scrap*) produced in the process and the ability to be reused and the same process in which the material is produced | No |
| Waste reduction claims can be made by a waste producer who moves his waste to another user who intends to utilize the waste for a good cause, rather than leaving it in limbo flow. | Yes |
| Reduction of the amount of waste can be calculated from the balance sheet of materials and also from the actual measurement of waste. | No |
| Comparison claims covering the environmental aspect of the product's life cycle must be quantified and calculated with the same unit of measure, based on the same functional unit, and calculated at intervals appropriate time | No |

(Source: Primary Data 2022 based on SNI ISO 14021: 2009)

According to Regulation of the Minister of Environment of the Republic of Indonesia No. 2 of 2004 regarding the inclusion of the Ecolabel Logo, the Indonesian self-declared ecolabel logo can be used only if a specific product has environmental claims that have been verified by the Ecolabel Verification Agency (Lembaga Verifikasi Ekolabel/LVE).

The principles of self-declaration of environmental claims include the followings. The implementation is proactive and voluntary, with compliance verified by an independent third-party registered with KLHK (The Ministry of Environment and Forestry). Producers, importers, distributors, or retailers can declare claims against a specific environmental aspect. Verification methods must be clear, transparent, scientific, valid, and documented. KLHK (The Ministry of Environment and Forestry) approves the embedding of the Self-Declaration Ecolabel logo if the product has been confirmed.




(Source: Ecolabel Guidance Book, 2022).

**Figure 3.** Process Flow Diagram of Indonesian Self-Declaration Ecolabel Logo.

The application for a self-declared ecolabel logo is accomplished by submitting a written application to the Ministry of Environment and Forestry and attaching a certificate of conformity issued by the Ecolabel Verification Agency as a verification result. After receiving clearance from the Minister, the self-declared ecolabel logo can be attached to products, packaging, and other media for publications and promotions.

As applicants for self-declared ecolabel, tourism villages must prepare some documents before submitting verification applications to LVE. Those documents include (1) the identity of the applicant, (2) the identity of the product being tested, (3) the test method used, (4) the validity date of the verification statement, and the validity period of the verification results, (5) statement of conformity between claims and test results, (6) producer's statement regarding compliance with laws and regulations in the field of environmental protection and management, and (7) manufacturer's statement on the implementation of the environmental management system.

Furthermore, the Minister of Environment and Forestry will make public approvals of applications for the inclusion of a self-declared ecolabel logo on the Ministry of Environment's website. The inclusion on the Ministry's website will provide an added benefit for producers or other interested parties, in this case, the Tourism Village, to state that it has evolved into an environmentally friendly tourism village and has been recognized by the Ministry of Environment and Forestry. This case distinguishes tourism villages that have made ecolabel self-declaration claims from those that have not. In a tourism village, obtaining a self-declared ecolabel certification from an independent certification body may be used to maintain and ensure sustainable tourism's application and consistency.

The followings are optional Ecolabel Self-Declaration claims that are often used by products or services that can be aligned with the waste generated to be further identified and assessed to meet environmental claims:

(1) compostable (can be composted), (2) degradable (can be decomposed), (3) recyclable (can be recycled), (4) recycled content (recycled content), (5) reduced energy consumption (reduction of energy consumption), (6) reduced water consumption (reduced water consumption), (7) reusable (can be reused), (8) refillable (can be refilled), and (9) waste reduction (reduction of waste).

## Conclusions

Cikolelet village has done an excellent job of implementing the practice of becoming a tourism village. Several attractions include highland nature, unique culture, creative industries, and environmental preservation. Furthermore, the Micro, Small, and Medium Enterprises (UMKM/usaha mikro kecil dan menengah) at Cikolelet Tourism Village are diverse and have developed a variety of marketable items. To maximize the village as a tourism village and be environmentally friendly, Cikolelet Tourism Village must conduct waste management according to the appropriate norms and regulations. Waste management assessments include compostable, recyclable, reusable, and waste reduction based on SNI 197030: 2004 and SNI ISO 14021: 2009.

Based on the assessment and observations results, Cikolelet Tourism Village has generally made environmental management efforts. However, some things that could be improved in waste management in terms of waste reduction (waste generation restriction and waste reuse) and waste handling, including sorting, transportation, processing, and final disposal, require some improvements. While implementing and improving its environmental management, Cikolelet has incorporated several requirements criteria. Therefore, Cikolelet Tourism Village has a strong potential for self-declared ecolabel claims.

Apart from that, significant efforts are required to improve waste management. This commitment can be accomplished by the following efforts: participation in an environmentally conscious group, capacity building, and developing an environmentally friendly waste management program. Expectedly, the self-declaration of an ecolabel can be used to promote ecologically friendly, enhance sustainable tourism, establish confidence among visitors and stakeholders, and as a marketing strategy tool. The limitation of this research is that the researchers do not conduct research about calculating waste generated and do not conduct research about ecolabel claims for the product.

Cikolelet Tourism Village has a potential tourism ecosystem that needs to be explored. Therefore, further studies can be conducted for several interesting points which can be improved in the village as (1) Ecolabel criteria can be implemented to other environmental aspects: Natural Resources Management, Energy, and other environmental aspects; (2) Ecolabel criteria can be expanded by reviewing aspects of commercial products of Small and Medium Enterprises (SMEs); (3) Exploring the potential funds that can be applied both from the private party, the Indonesian government, and other countries including the gap analysis to fulfill the funding criteria which are relevant to the condition of Cikolelet Village for supporting its tourism development; (4) In developing tourism villages, other certification schemes can be applied such as Halal Certifications for commercial foods product and Clean, Health, Safety & Environment (CHSE) which grants certificates to tourism businesses and tourism destinations issued by The Indonesian Ministry to increase consumer confidence.

## References

Adejumo, I. O., & Adebiyi, O. A. (2020). Agricultural solid wastes: Causes, effects, and effective management. *Strategies of Sustainable Solid Waste Management*, *8*.

Alfaro, E. F., Dias, D. B., & Silva, L. G. (2013). The study of ionizing radiation effects on polypropylene and rice husk ash composite. *Radiation Physics and Chemistry*, *84*, 163-165.

Agustina, A., & Aprinica, N. P. I. (2021). The Effect of Regulations on Using Disposable Plastic in Community and Tourism Behaviors in Denpasar, Bali. *Journal of Business on Hospitality and Tourism*, *7*(1), 33-38.

Balaman, S. Y. (2019). Introduction to biomass—resources, production, harvesting, collection, and storage. *Decision-making for biomass-based production chains. Elsevier, San Diego*, 1-23.

CheaperWaste. (2021). *Business waste: Everything you need to know*. CheaperWaste. Retrieved May 25, 2022, from https: //www.cheaperwaste.co.uk/blog/business-waste-everything-you-need-to-know/

Damanhuri, E., Wahyu, I., Ramang, R., & Padmi, T. (2009). Evaluation of municipal solid waste flow in the Bandung metropolitan area, Indonesia. *Journal of Material Cycles and Waste Management*, *11*(3), 270-276.

Dinas Kominfo, Jatim Prov. (n.d.). *Logo Ekolabel, Cara KLH Jaga Produk Ramah Lingkungan*. Dinas Komunikasi dan Informatika Provinsi Jawa Timur. Retrieved May 28, 2022, from https: //kominfo.jatimprov.go.id/read/umum/39289

Gerba, C. P., & Pepper, I. L. (2009). Wastewater treatment and biosolids reuse. In *Environmental microbiology* (pp. 503-530). Academic Press.

Government Regulation of the Republic of Indonesia No. 18 of 2008 regarding Waste Management

Government Regulation of the Republic of Indonesia Number 81 year 2012 concerning management of household waste and houshold types ohe implementation of waste

Harianti, D. (2015). SNI Ekolabel Baru Mencakup 13 Kategori Produk. Retrieved May 25, 2022. https://ekonomi.bisnis.com/read/20151124/12/495355/sni-ekolabel-baru-mencakup-13-kategori-produk.

Hutagalung, H., Purwana, D., Suhud, U., Hamidah, H. (2021). Analisis Kualitatif Fenomenologi Interpretatif pada Kemandirian Masyarakat Desa Wisata di Yogyakarta, Indonesia. *Prosiding Seminar Nasional Unimus*, 4, 781-800.

International Organization for Standardization. (2016). *Environmental labels and declarations* (ISO/DIS Standard No. 14021). Retrieved from http: //www.iso.org

Kadam, K. L., Forrest, L. H., & Jacobson, W. A. (2000). Rice straw as a lignocellulosic resource: collection, processing, transportation, and environmental aspects. *Biomass and Bioenergy*, *18*(5), 369-389.

Kemenparekraf. (2022). *Anugerah Desa Wisata Indonesia 2021 Telah Memasuki Babak Baru*. Kemenparekraf/Baparekraf RI. Retrieved May 25, 2022, from https: //kemenparekraf.go.id/ragam-pariwisata/Anugerah-Desa-Wisata-Indonesia-2021-Telah-Memasuki-Babak-Baru

Lim, J. S., Manan, Z. A., Alwi, S. R. W., & Hashim, H. (2012). A review on utilisation of biomass from rice industry as a source of renewable energy. *Renewable and sustainable energy reviews*, *16*(5), 3084-3094.

Moraes, C. A., Fernandes, I. J., Calheiro, D., Kieling, A. G., Brehm, F. A., Rigon, M. R., ... & Osorio, E. (2014). Review of the rice production cycle: by-products and the main applications focusing on rice husk combustion and ash recycling. *Waste Management & Research*, *32*(11), 1034-1048.

Needham, M. D., & Rollins, R. (2009). Social science, conservation, and protected areas theory. *Parks and protected areas in Canada: Planning and management*, *3*, 135-168.

Perpustakaan Kementerian Lingkungan Hidup. (May 14 , 2022). *Informasi Panduan Singkat Program Ekolabel Indonesia*. http: //perpustakaan.menlhk.go.id/pustaka/images/docs/Ekolabel.pdf

Qodriyatun, S. N. (2018). Sampah Plastik: Dampaknya Terhadap Pariwisata dan Solusi. *Info Singkat*, 10(23), 13–18.

Rachman, A. F. (2014). *Geografi Pariwisata Jawa dan Bali*. Media Bangsa: Jakarta

Rachman, A. F., Suprina, R. (2019). Pendampingan Desa Cipasung Menuju Desa Wisata. *Jurnal Pemberdayaan Pariwisata*, 1(1), 9-20,

Rachman, A. F., Suprina, R. (2020*). Laporan Pendampingan Desa Wisata Cikolelet oleh STP Trisakti (Program Pendampingan Perguruan Tinggi Kemenparekraf Republik Indonesia*. STP Trisakti: Jakarta

Redmond, J., Walker, E., & Wang, C. (2008). Issues for small businesses with waste management. *Journal of Environmental Management*, *88*(2), 275-285.

Rosenfeld, P. E., Lydia, G. H., Feng. (2011). *Chapter 22 - Strategies for the Future – Waste Reduction and Recycling, Treatment Technologies, and Green Chemistry*, in Risks of Hazardous Wastes, William Andrew Publishing, Pg. 269-284, ISBN 9781437778427. https: //doi.org/10.1016/B978-1-4377-7842-7.00022-2.

Septiani, B. A., Arianie, D. M., Risman, V. F. A. A., Handayani, W., & Kawuryan, I. S. S. (2019). Pengelolaan Sampah Plastik di Salatiga: Praktik, dan tantangan. *Jurnal Ilmu Lingkungan*, 17(1), 90–99.

Shukor, J. A., Omar, M. F., Kasim, M. M., Jamaludin, M. H., & Naim, M. A. (2018). Assessment of composting technologies for organic waste management. *J. Assessment*, 9(8).

SIG. (2021). Raih Sertifikat Ekolabel Swadeklarasi dari KLHK, SIG Produksi Beton Ramah Lingkungan. Retrieved May 25, 2022. https: //sig.id/id/2021/07/15/raih-sertifikat-ekolabel-swadeklarasi-dari-klhk-sig-produksi-beton-ramah-lingkungan/

Singer, J., Kieu, K. T., & Pravitasari, A. E. (2019). Solid Waste Management in Tourist Destinations in Developing Nations: Case Studies in Hoi An, Vietnam, and Puncak, Indonesia. In *Environmental Sustainability and Education for Waste Management* (pp. 189-206). Springer, Singapore.

Standar Nasional Indonesia. (2004). *Specifications of compost from domestic organic waste* (SNI Standard No. 19-7030). Retrieved from http: //www.bsn.go.id

Standar Nasional Indonesia. (2008). *Waste management in settlements* (SNI Standard No. 3242). Retrieved from http: //www.bsn.go.id

Standar Nasional Indonesia. (2009). *Label lingkungan dan deklarasi Klaim lingkungan swadeklarasi (pelabelan lingkungan Tipe II)* (SNI Standard No. 14021). Retrieved from http: //www.bsn.go.id

Suprina, R., Rachman, A. F., Fitriana, R. (2019). Peningkatan Kapasitas Desa Wisata Cikolelet Melalui Program Pendampingan. *Jurnal Pemberdayaan Pariwisata*, 1(1), 26 – 35

Tien, N. H., Dung, H. T., Vu, N. T., Doan, L., & Duc, M. (2019). Risks of unsustainable tourism development in Vietnam. *International Journal of Research in Finance and Management*, *2*(2), 81-85.

Utomo, T. H. A. (2014, June 5). Produk Hijau Indonesia. Retrieved May 23, 2022, from http: //phi.iforgi.com/#

Wahyuni, S., et al. (2018). IOP Conf. Ser.: Earth Environ. Sci. 141 012035

Widjaja, T., Iswanto, T., Altway, A., Shovitri, M., & Rachmania Sri, J. (2017). Methane Production from Coffee Pulp by Microorganism of Rumen Fluid and Cow Dung in Co-digestion. *Chemical Engineering Transactions*, *56*, 1465–1470. https: //doi.org/10.3303/CET1756245