ORGANIC TRASH MANAGEMENT TOURISM ACCOMMODATION AT MAIMAGOT ORGANIC FARM IN ABIANBASE VILLAGE, BERKATAN, BADUNG REGENCY

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ABSTRACT

The research conducted aims to analyze the management of organic trash for tourism accommodation carried out by the Maimaggot organic farm. The organic trash generated by the restaurant kitchen of the Four Seasson Sayan and Alam Group Ubud hotels is managed by the Maimaggot organic farm so that it becomes a product that has economic value. Products that can be produced from organic trash that have been properly managed include maggot as an alternative feed for chickens, ducks, birds and fish and managed to become compost products. According to information from the manager of the Maimaggot organic farm , efforts to deal with organic trash need collaboration with various parties, especially in the early stages of sorting trash from its source so as to produce good quality maggot feed. The results of this study are expected that tourism accommodation managers understand the importance of managing organic trash properly so that it will not pollute the hotel environment.

Keywords : organic trash, tourism accommodation, compost

I. INTRODUCTION

The island of Bali is a popular destination in the world, even Bali is better known abroad compared to Indonesia. This is because Bali tourism has various tourist attractions with its natural beauty, friendliness

as well as supported by the uniqueness of the culture that is very thick with values in Hinduism. So that the island of Bali has been named a popular destination for 2021 by Tripadvisor. Apart from that, in 2022 Bali will also be given an award by Clubmed which is an international institution as the happiest vacation spot.

The island of Bali as a popular destination has had an impact on the increasing number of tourist visits to Bali, especially for tourism accommodation businesses. It was recorded that the Room Occupancy Rate (TPK) in star hotels in Bali in January 2023 was 46.16%, in February 2023 it was 41.22% compared to the TPK in January and February 2022 which was only 17.87% (Kemenparekraf Data and Information System Center/ Baparekraf, 2023) . In period 1-

March 19, 2023, the Room Occupancy Rate (TPK) in The Nusa Dua area reached 70.73% of the 22 hotels in The Nusa Dua area, and 15 hotels were already above 70% occupancy (Indonesia Tourism Development Corporation, 2023). The increase in room occupancy was

also felt in the Kuta, Canggu and Ubud areas. This makes Bali tourism a leading sector in Bali in order to increase the level of the Balinese economy.

However, along with the increasing number of tourist visits to Bali, it specifically has an impact on increasing room occupancy in tourism accommodation. The problem that arises along with the increase in room occupancy rates in tourism accommodation is the trash generated from these tourism accommodations, especially the three areas in Bali which are the centers of Bali tourism including: Denpasar, Badung and Gianyar. Garbage is stated as the residue of human daily activities and or solid natural processes (Law of the Republic of Indonesia No.18, 2008). The types of trash that are mostly produced in Bali are 60% organic trash, 20% plastic trash, 11% paper trash, 2% iron trash, 2% glass trash and others 5% and canang (as a means of prayer) as well as contributors trash in Bali (Muhajir, Anton, 2019).

Tourism and trash cannot be separated, because the more tourism activities increase in an area, the greater the amount of trash generated. Trash that is still lacking in management is organic trash because organic trash is included in trash that quickly decomposes, if this organic trash is not handled properly it will pollute the environment so that it has a negative impact on the image of the tourism accommodation. There needs to be education about trash management so that trash can be handled properly and has benefits. Organic trash management in Bali has traditionally been carried out from generation to generation by making it as fodder for pigs and as green manure for rice plants (Wardi, 2012).

Organic trash generated from tourism accommodation includes food trash, fruits and vegetables. Good organic trash management can provide economic benefits to all parties and have a positive impact on environmental preservation. Organic trash management requires the right technique so that the processed trash does not produce trash again. Bioconversion technology for organic trash is one of the solutions organic trash problems, with maggot cultivation using insect bioconversion. Black Soldier Fly (BSF) larvae are flies that can be used to convert organic trash so that it provides economic potential. These flies are not included in disease vector animals and are safe for human health.

The management of organic trash produced by tourism accommodation that is not handled properly, has begun to be managed by the Maimaggot organic farm, with maggot cultivation which provides benefits for all parties as well as a sustainable environmental preservation effort. This method is a solution for the management of organic trash for tourism accommodation, apart from that maggot cultivation can be used as an alternative to animal feed such as chickens, ducks, fish and birds which have a high protein content and organic trash can also be used as compost.

This research is expected to know: (1). The form of organic trash management for tourism accommodation at Maimaggot organic farm (2). Products - products produced from the processing of organic trash.

LITERATUR REVIEW

2.1. Definition of Trash

In general, trash is defined as all objects that are not used by living things, so that they become trash. Garbage is also mentioned as residual household materials, both in solid, liquid and gas form, so it has the potential to cause environmental pollution. According to WHO (World Health Organization) Trash is something that is not used, not used, not liked or something that is thrown away that comes from human activities and does not happen by itself. According to Law No. 18 of 2008 concerning trash management, trash is defined as the residue of daily human activities or the remains of natural processes which can be in the form of solid or semi-solid, organic or inorganic substances and are biodegradable or non-degradable which are considered useless. and discharged into the environment.

2.2. Types of trash

2.2.1. Types of trash based on their nature

1) Organic trash is trash generated from biological materials, so that it is easily degraded naturally by microbes. This organic trash decomposes easily because it comes from leftover food, fruit peels, vegetables, leaves and wood which are mostly produced by household kitchens and markets.
2) Inorganic trash is leftover material produced from non-biological materials in the form of processed mines and synthetic products that are difficult to decompose and therefore take a long time to decompose. This trash is made from plastic, glass, metal, ceramics and paper.

2.2.2. Types of trash based on its form

1) Solid trash is all the remains of solid material that has been disposed of by humans, including: kitchen trash, broken glass, used cans, plastic bottles and food packaging.
2) Liquid trash is trash in liquid form, this trash usually pollutes rivers, ditches and rivers.
3) Gas trash is material trash in the form of gas that is not needed by humans, including: carbon monoxide (CO) as combustion residue.

2.2.3. Types of trash based on source

1) Household trash is trash generated from households, including sources from bathrooms, kitchens, restaurants in the form of liquid trash used for washing and cleaning things for daily needs.
2) Industrial trash is trash originating from factories, hotels, laboratories, hospitals where this trash contains various kinds of chemicals.
3) Agricultural trash is trash originating from agriculture in the form of residues of insecticides and fertilizers, remnants of agricultural products such as vegetable scraps, leaves, stems and fruit).

2.3. Negative Impact of Trash

The trash problem is a serious problem because if it is not handled properly it will have a negative impact on the image of Bali tourism. According to Gelbert et al (1996) there are three impacts of trash on humans and the environment including:

2.3.1. Impact on health

Trash management that is not good and accumulates over a long period of time will become a breeding ground for organisms that cause dangerous diseases and cause several diseases such as intestinal worms, fungi, typhus, diarrhea, gastroenteritis, hepatitis A and cholera.

2.3.2. Impact on the environment

Garbage that is not managed properly also has an impact on the environment, because public education is still lacking regarding trash management, so that a lot of garbage or trash is dumped into ditches and rivers whose impact is felt during the rainy season which triggers natural disasters such as floods. Besides that, piles and decomposition of garbage can produce methane gas (CH4) and carbon dioxide (CO2) which allegedly can damage the layers of the earth's atmosphere.

2.3.3. Impact on social and economic

Trash that has been piled up for a long time also has an impact on the social community, the pile of garbage will reduce the aesthetic value/beauty of a place, the stench generated by garbage affects the comfort and psychology of the community. Economically, trash that is not managed properly will cause disease so that it costs money for treatment.

METHOD

The research method used was direct observation at the Maimaggot Organic Farm located on Jalan Raya Abianbase No.99, Mengwi District, Badung Regency. In-depth interview with the guest speaker, Mr. Lanang Dyatmika, one of the managers of the Maimaggot organic farm. Literature study with various sources from previous research including through a journal entitled processing of organic trash for the cultivation of the Maggot Black Soldier Fly, the phenomenon of trash and tourism in Bali, and from the journal utilization of black soldier larvae (Hermatia illucens) as organic trash management through cultivation maggot. Research is also equipped with collecting documentation owned by researchers and conducting sound recordings of the results of the topics studied.

II. RESULT AND DISCUSSIONS

4.1. Overview of Maimagot Organic Farm

Maimagot Organic Farm is a farm that cultivates maggot through the black soldier fly (BSF) bioconversion method which was founded in October 2020. It started with the idea of Mr. Mr. Hery Krysta, Mr. Made Suastama, Mr. Komang Supriadi and Mr. Made Sudiartha they are workers from HIS Tour & Travel who were at home during the Covid-19 pandemic. The Maimaggot business is managed on a self-managed basis by Mr. Doni and his colleagues.

Maimaggot organic farm works with several hotels in the Ubud area to manage their organic trash. The trash managed by the Maimaggot organic farm is trash from tourism accommodation including the Four Season Sayan Hotel, Alam Group Ubud and Grya Luhu which already have a partnership. The organic trash comes from the kitchen of the hotel restaurant in the form of food scraps, fruits and vegetables. The system used by Maimaggot organic farm is by picking up every day to Hotel Four Seasson Sayan and Alam Group Ubud from 05.00 am to 10.00 am. The trash that has been taken has carried out a sorting process from the source.

4.2. Tourism Accommodation Organic Trash

The development of Bali tourism has had a positive impact on the number of tourist visits to Bali resulting in an increase in room occupancy in tourism accommodation, but has a negative impact on environmental preservation, because the more the number of tourist visits, the more trash will be generated from tourism accommodation. The problem with organic trash still needs to be handled, because if it is not managed properly, organic trash quickly decomposes, causing an unpleasant odor and disturbing environmental preservation. Garbage that is not handled properly will form a negative image of the hotel to tourists, which will indirectly affect tourist visits.

Based on information from Mr. Lanang as one of the managers of the Maimaggot organic farm, almost 800 kg of organic trash is managed every day from the Four Seasson Sayan Hotel and Alam Group Ubud. The organic trash is in the form of food scraps, fruits and vegetables produced by the hotel restaurant.

Figure 1. Tourism Accommodation Organic Trash
Source: Research, 2023

4.3. Forms of Organic Trash Management at Maimaggot organic farm

The high generation of organic trash generated by tourism accommodation if it is not managed properly will cause accumulation of trash and can pollute the environment. The following are several forms of trash management carried out at the Maimaggot organic farm in managing tourism accommodation organic trash.

4.3.1. Organic trash milling

The initial stage in managing tourism accommodation organic trash, where the trash that has been collected and has been sorted from the source and checked again so that it will not be mixed with other trash. The organic trash will then be milled or chopped using a machine. Organic trash that has been milled will be stored in covered buckets which will later be used as maggot feed.

Figure 2: Stages of organic trash milling
Source: Research, 2023

Figure 3: Storage of organic trash mills
Source: Research, 2023

4.3.2. Management of organic trash using the bioconversion method

The bioconversion method is one of the solutions in managing tourism accommodation organic trash by involving microorganisms such as fungi, yeast, bacteria and larvae to convert organic trash into high-value products. Black

Soldier Fly (BSF) is a fly that does not cause disease because its life span is only for mating and producing and producing maggot which has a chewy texture and secretes enzymes which can be digested and used as feed for chickens, ducks, birds and fish. Manggots can convert trash and reduce trash by 52-56% so that mangoes can be used as a solution to reduce organic trash. The rest of the dried maggot feed can be used as compost which is beneficial for plants, so it doesn't produce any more trash.

The Black Soldier Fly (BSF) which is used to decompose organic trash has several cycles starting from the age of three days the BSF flies have started to mate and the five days old BSF has started laying eggs. Furthermore, the eggs will be separated and hatched on the third day. Egg hatching can be done by placing it in a plastic basin and assisted by preparing the feed from pellets. The hatching medium used is set to a humidity of around 70%.

Figure 4: The Black Soldier breeding grounds *Fly* (BSF)
Source: Research, 2023

Figure 5: BSF larvae eggs
Source: Research, 2023

Furthermore, eggs that have hatched for one week are called baby maggots. This baby maggot is placed on maggot enlargement media (biopond). In this enlargement phase, the baby maggot is given organic trash feed that has been ground/chopped every day. In 5 grams of BSF larvae eggs can produce 10 kg of maggot in.

Figure 6: Baby maggot is fed with organic trash
Source: Research, 2023

Baby maggots that have been fed with milled organic trash will become BSF maggots in approximately three weeks until they are ready to be harvested.

Figure 7: Maggot BSF
Source: Research, 2023

4.4. **Products - products produced from the processing of organic trash**

Organic trash managed by Maimaggot organic farm with the bioconversion method using BSF fly larvae has economic potential, as well as selling power so it can boost the economy. Some of the products produced from tourism accommodation organic trash processing include:

4.4.1. BSF larvae eggs

BSF larvae eggs are eggs that have been produced from BSF flies, these BSF larvae eggs will go through an incubation period of 72 hours or 3 days. These larvae eggs are also in great demand by hobbyists and breeders which are used as animal feed.

4.4.2. Baby maggot

After the BSF larvae eggs are 3 days old, they will be transferred to the biopond or hatching media. This baby maggot has started to be given ground organic trash feed. This baby maggot is also much sought after by hobbyists and breeders

4.4.3. Maggot BSF

This BSF maggot after 18 days old will be brownish white. At this time, they are also still given organic trash feed that has been ground and even this maggot is able to consume up to 80% organic trash. This BSF maggot product is in great demand by hobbyists and breeders because it is used as an alternative feed for chicken, duck, fish and bird breeders. This BSF maggot is relatively cheap compared to feed made by factories, besides that this BSF maggot

from the day of the study said that the content contained in this BSF maggot consisted of around 41-42% protein. This BSF maggot is sold on the market for around IDR 10,000/kg

4.4.4. Compost

Compost fertilizer is obtained from the remaining feed given to the BSF maggot. The remains of the BSF maggot feed are dried so that they become compost and have a high selling value. Compost produced by organic trash can be used for environmental preservation. According to information from Mr. Lanang, the manager of the Maimaggot organic farm, the organic trash taken from the Four Seasons Hotel and Alam Group Ubud is returned in the form of a compost product which can be used to fertilize plants, especially fruit trees at the hotel. So the result of all the organic trash will not become trash again, in fact, the trash has high selling power

Figure 7: Compost from organic trash Source: Research, 2023

III. CONCLUSION

Organic trash management using the black soldier fly (BSF) bioconversion method overcomes the problem of organic trash. Organic trash so far still needs serious handling because this organic trash is trash that perishes easily, and if this trash is allowed to accumulate it will cause a foul odor and disturb the comfort of tourists who are in these tourism accommodations. The solution to this organic trash problem was developed by Maimaggot organic farm, a farm that cultivates maggot as a decomposer for organic trash.

Maggot cultivation has a high selling value, because this maggot is in great demand by hobbyists and breeders of chickens, ducks, fish and birds as alternative feed. This maggot contains protein which is good for livestock, and some use baby maggot as a decomposer for chicken manure, so that the manure doesn't smell bad. After becoming a maggot, it was immediately given to the chicken feed.

Apart from cultivating maggot which has high selling power, organic trash from tourism accommodation is also used for compost. Maimaggot organic farm utilizes the remaining feed trash from the maggot to be composted again. Five percent of the compost produced is returned to Hotel Four Seasson Sayan and Alam Group Ubud for the preservation of the hotel's environment, because compost produced from good organic trash is used as fertilizer for fruit plants.

It is hoped that in the future as an effort to manage organic trash, the participation of various parties is needed, especially in the early stages of sorting trash from its source, good maggot quality depends on the feed given

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