

CHAPTER I

INTRODUCTION

A. Background

Indonesia is one of the countries, which is rich in natural wonders, such as beaches, lakes, and mountains. Those natural wonders make Indonesia an attractive destination for tourism. As a result, tourism has become one of the economic drivers in Indonesia. The survey result conducted by the famous British Guidebook publisher, Rough Guides shows that Indonesia is voted as the world's 16th most beautiful country. This indicates that Indonesia's attractiveness as a destination has been recognized by the world. However, unfortunately some destinations have faced problems with waste, which degrade the aesthetic value of the natural environment and also the environment around the destination.

Bali is one of the destinations, known for its beautiful beaches as the attractions. However, due to the trash scattered around the environment of the beach, many tourists are disappointed looking at the natural environment of Bali filled with trash (Sutrisnawati and Purwahita, 2018). The waste problem in Bali is a huge issue to the point that it takes foreign media attention to cover the condition of Bali seawater filled with plastic waste and the Department of Environment and Hygiene of Badung Regency Bali has declared a 'trash emergency'. The source of the waste is from the river, which has been contaminated by the household waste and economic activities waste from the land. Another research by Qodriyatun

(2018), states that according to the Department of Culture and Tourism of Manado, the number of tourists in Bunaken, North Sulawesi is decreasing by 65% in 2016 due to waste problem. Even though the government has tried to apply the paid plastic bag program in retail and shopping centers, the program is not effective enough to reduce plastic waste in the destination. Furthermore, not only affecting the environment and tourism, waste in the ocean and landfill can also negatively affect the health of all living creatures in the ocean and community around the environment. Here it can be seen that waste can threaten the tourism industry in Indonesia and there's a chance to lose tourists if the waste is not properly managed. Tourism is one of Indonesia's economic drivers. According to a report by the World Bank's June 2019 Indonesia Economic Quarterly, Indonesia's ocean can make a larger contribution to the country through tourism revenue and fisheries. Therefore, it is crucial to maintain the environment of the tourism destinations and preserve the natural environment for tourism.

Furthermore, according to The Travel & Tourism Competitiveness Index 2019 by the World Economic Forum, Indonesia is globally ranked 40 out of 140 countries based on 4 indicators, which is made of 14 pillars. Two pillars, which can help Indonesia to rank higher are Health and Hygiene and Environmental Sustainability. For the Health and Hygiene pillar, Indonesia is ranked 102 out of 140 countries, with a score of 4.5 out of 7.0. While for Environmental Sustainability pillar, Indonesia is ranked

135 out of 140 countries, with a score of 3.5 out of 7.0. Additionally, the United Nation also set the Sustainable Development Goals no. 14. Life Below Water, to reduce marine pollution by reducing waste from activities in the land.

Waste is defined by the Environment Protection Act 1993 (2019) as “any discarded, rejected, abandoned, unwanted or surplus matter, whether or not intended for sale or for recycling, reprocessing recovery or purification by a separate operation from that which produces the matter”. Similarly, Law of Republic Indonesia Number 18 of 2008 Concerning Waste Management defines waste as the residue of human daily activity and/or natural process in the solid form.

Table 1
Indonesia Total Population Projection 2017-2021

Year	Total Population Projection
2021	272,248,500 people
2020	269,603,400 people
2019	266,911,900 people
2018	264,161,600 people
2017	261,355,500 people

Source: BPS-Statistics Indonesia

From the table, it can be seen that the total population projection increases around 1% every year. Based on Worldometer elaboration of the latest United Nation data, as of August 2020, the population of Indonesia 273,523,615 people, which is around 4,000,000 more than the projected population by Statistics Indonesia.

Tabel 2
Total Waste Produced in Indonesia

Year	Total Waste per Year
2019	67,800,000 ton
2018	66,500,000 ton
2017	65,800,000 ton

Source: Ministry of Environment and Forestry

Based on the table above, it can be seen that the total waste produced in Indonesia increases around 1% every year. The increasing waste produced is expected due to the increasing population every year, as it can be seen that as the population increases, so does the waste produced.

Among the 34 provinces in Indonesia, The Capital City, Jakarta produces the most waste. It has a total of waste that is also becoming a concern. In 2020, Head of Environmental and Cleanliness Services (*Dinas Lingkungan Hidup*) confirmed that Jakarta already produced around 7.600 ton of waste per day and 61% of the total waste is household waste. As the amount of waste keeps increasing everyday, Indonesia's largest landfill, Bantar Gebang has been predicted to be full in 2021. Moreover, according to the latest report, household waste is expected to increase due to the 2020 Large-Scale Social Restriction in Jakarta. Many people takeaway or deliver food to their house and for safety reasons the packaging of the fresh food is wrapped in layers of plastic. As a result, more household waste is likely to be produced more, especially plastic waste from the food packaging.

In Indonesia, waste is divided into four types, which are called household waste, household-like waste, specific waste, and hazardous and toxic waste. Household waste is the type of waste produced in everyday life, such as organic waste (food waste) and inorganic waste (plastic, paper, glass, and metal). Household-like waste also includes organic and inorganic waste, but produced in the larger amount in the commercial, industrial, and public facilities. Specific waste is divided based on the composition/material of the waste. Lastly, the hazardous and toxic waste is the harmful waste for the environment and health.

Table 3
Waste Composition in Indonesia

Type of Waste	Percentage
Organic	50%
Plastic	15%
Paper	10%
Others (metal, rubber, and glass)	25%

Source: Ministry of Environment and Forestry 2019 data proceed by IndonesiaBaik.id

Based on the table, most of the waste that is produced in Indonesia is organic waste, which takes 50% of the overall waste. Then, followed by plastic with the percentage of 15%. The rest is paper and other types of waste such as metal, rubber and glass.

Table 4
Source of Waste in Indonesia

Source of Waste	Percentage
Household	48%
Traditional Market	24%
Commercial	9%
Public Places	19%

Source: Ministry of Environment and Forestry 2019
data proceed by IndonesiaBaik.id

The table above shows that most of the waste comes from households and followed by the traditional market. This is likely one of the reasons why organic waste is the most waste produced in Indonesia.

The waste management system in Indonesia is called the 3R (Reduce, Reuse, Recycle) System. Reduce is the effort to reduce the volume of waste by avoiding using it. For example, avoiding the use of plastic to reduce the amount of waste produced. Reuse is the effort to reuse the item, instead of throwing it. For example, using a reusable cloth bag for groceries shopping instead of a single use plastic bag in order to prevent producing waste. Recycling is the effort to turn the waste into useful items when reduction and reuse are not possible. Recycling is the last option to be done to avoid dumping waste in the landfill. The reason for applying the 3R system is because it takes time for the waste to decompose. The organic waste can compose by itself because it is degradable. The problem is the inorganic waste, which is non-degradable. Among the different types of inorganic wastes, plastics require the most

time to decompose. According to WWF Australia, plastic bags take 20 years, plastic straws take 200 years, and plastic bottles take 450 years to decompose.

According to a research report by Jamback (2015), Indonesia is the world's second largest marine polluter with its plastic waste in 2015. One of the reasons is due to the unsorted waste, which makes it difficult to recycle. As a result, most plastic waste ends up in the rivers, coastal waters, landfills or lead into the ocean. Mohamad Bijaksana Junerosano, the founder and managing director of Waste4Change, a social enterprise focused on responsible waste management in Indonesia, states that Indonesian generates around 175,000 tons of waste everyday, which is around 64,000,000 tons every year. Furthermore, 81% of the waste is unsorted. According to the Sustainable Waste Indonesia 2017 report, only 7% of the waste is recycled, 69% is dumped in the landfill and 24% is illegally dumped.

As stated by reports, Indonesia still lacks sorting waste education as it can be seen that 81% of the waste is unsorted. Unsorted waste is one of the reasons why many waste ends up in the landfills and oceans and contaminates the surrounding environment because it is difficult to recycle. A research by Zakianis (2017) regarding waste sorting behavior in Indonesia households, reports that 91% of the respondents don't sort their waste and the reason for not sorting waste is 34% due to the lack of knowledge what kind of waste can be sorted. So, even though the

government has come up with the *Tempat Pemilahan Sampah 3R* (Reduce, Reuse, Recycle) system to compost organic waste and process some inorganic waste into small materials for recycling purposes to reduce the waste being dumped to the landfill, the waste is still difficult to process because the organic and inorganic waste are already mixed. Moreover, even if it is possible to sort the waste again, it takes time and the economic value of the waste has decreased. As a result, most of them eventually end up in the landfill. Reduce and reuse are the most recommended waste management. But due to circumstances, reduction and reuse are not possible. For example, plastic is still needed for food packaging in the supermarket. So, recycling has to be done to reduce the amount of waste dumped in the landfill.

As citizens of Indonesia, they should support the government to save Indonesia's natural environment and ocean by sorting their own waste to ease the recycling process because the TPS 3R system will not be successful without the involvement of the citizens themselves. Recycling will help to minimize the waste being dumped in the landfills. Giurea et al (2018) emphasize that recycling is one of the environmentally sustainable practices. In order to recycle, waste sorting is important because waste sorting is necessary and the most crucial part of recycling (Phu et al, 2018). Waste sorting is the act of separating waste based on its types. Besides easing the recycling process, waste sorting is also one of the ways to prevent waste scattered around the environment and end up in the ocean

and help to save the landfills and oceans, which can be one of Indonesia's tourism destinations. Governor of DKI Jakarta and Central Java also encourages waste sorting at the source for effective waste management. Waste sorting at the source refers to the action of sorting waste directly where the waste is produced. Therefore, knowledge, attitude, and behavior regarding waste sorting must be developed as soon as possible, especially for the younger generation. The reason is because it takes time to instill the sorting waste behaviour in life.

Sorting waste means contributing to the environment and preventing waste pollution because it helps the recycling process of recyclable waste, especially plastic waste. For this reason, a book about household waste sorting will be created to raise awareness of the importance of sorting waste and provide education on the way to sort waste. The book not only can be used in the household, but can also be used in the commercial sector, such as hotels and restaurants, which produce similar household waste. The book specifically focuses on the household waste because it is the type of waste, which is most produced in Indonesia. Everyone is likely to produce household waste everyday from the daily activity. Moreover, similar household waste is also produced at the public places and commercial sectors, such as hotels and restaurants. So, the public places and commercial sector providers might be able to use the book as reference as well.

B. Purpose

The purpose of this book is to raise awareness of the importance of sorting waste at the source for effective waste management and environment sustainability. After being aware of the importance of sorting waste, hopefully waste sorting behavior is instilled in daily life at home, workplace, and anywhere the waste is produced, even when travelling to other countries. Besides for recycling purpose, waste sorting is one of the ways to keep the environment clean, which then help to achieve the Sustainable Development Goals no. 14. Life Below Water, as waste sorting can help to prevent waste from the land-based activities entering the ocean. Because according to Ocean Conservancy, even if the waste is produced in the city, if it is not properly disposed and managed the waste can be blown by the wind and travel through the pipes and downriver and end up in the ocean. The book will provide education of the way of sorting or separating waste at the source in order to help the recycling process of recyclable waste, especially plastic waste. In this way, it is hoped that the waste ending up in the landfill and ocean, which can be Indonesia's tourism destinations, will gradually decrease and will lead to environmental sustainability.

The education of waste sorting is important because it is the first step of waste management and environmental sustainability as it helps the recycling process. The book will provide education of types of waste, which are dangerous waste, recyclable waste and non recyclable waste.

Some waste which is recyclable can become non recyclable because of contamination, for example, pizza boxes made of paper are recyclable as long as they are not contaminated by the oil, sauce or any food debris from the pizza. This is important to know because the food waste may contaminate the other waste, which makes the other recyclable waste not possible to be recycled.

The target audience of the book will be students in the high school and university, who will be the next leader of the country. Students in high school and university are at the age of 16 - 21 years old. According to the Albert Einstein College of Medicine, children at the age of 16 - 17 years old begin to mature and think about the future education. While, children at the age of 18 - 21 are able to evaluate options and make decisions. As they have a wider perspective, they begin to be concerned about social issues, such as homelessness, crime and preserving the environment. In this way, hopefully as they are aware of the current waste problem in Indonesia, they will also think about the future of the country and be able to make changes in their current actions towards waste for a better environment in the future. The book will be written in Bahasa Indonesia in order to make it easier for the Indonesian students to learn about waste sorting as it is their mother language. Moreover, Bahasa Indonesia book will be able to reach more Indonesian students, including those who might not have the chance to learn English yet. By being aware of the waste problem in Indonesia, it is hoped that they will be able to be more

responsible of their waste and start managing their waste by simply sorting their own waste at the source whenever possible because what they do now will determine what kind of environment they will live in the future.

In order to reach the students, the physical book will be donated to the library of some schools to make it easier for students to access the book. After the book is registered for International Standard Book Number, the book can be accessed in the National Library. Moreover, the book can also be purchased online easily through online shopping platform and e-book platform.

