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# Indonesia Strategy to Reduce Land-Based Sources Pollution to Achieve the SDG Target on Life Below Water

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**Abstract.** The oceans are so vast that it is estimated that humans have only explored 5% of their total surface area. Oceans cover more than 70% of the Earth's surface. Unknowingly, the ocean is one of the main sources of support for many humans. Unfortunately, the importance of oceans is often overlooked. Humans are important entities that have a significant impact on the changes that occur in the oceans. Since before 1972, humans have often indirectly dumped garbage, sewage sludge, chemical waste, commercial waste, and radioactive waste into the sea. According to analysis, 80% of worldwide marine pollution is from land-based pollution (Land-primarily based sources pollution/"LBSP"). The plastic waste, nutrients, pesticides, weight, sediment, and steel waste that enter the water glide through LBSP are the result of family activities, industry, tourism, and agriculture. Every year, 8 million tonnes of plastic waste from deep inland areas ends up inside the ocean, on top of the expected 150 million tonnes, that presently circulate marine environments. This paper was conducted through a literature study and in-depth analysis the using qualitative research methods. This paper pursuits to analyse the proper strategy that the Indonesian government can take as a primary contributor to plastic waste inside the global and reduce ocean pollution.

## INTRODUCTION

The ocean is not only the largest and most expansive part of the planet. The oceans cover more than 70% of the earth and are the livelihood of most people. The ocean provides many people with a source of income and sustenance, and it is also a popular vacation spot for many people around the world. The ocean has many benefits for humanity, but human activity can threaten these benefits. The United Nations has discovered that 80% of ocean plastic comes from land-based pollution (Land-based sources pollution/"LBSP"). Article 207 of UNCLOS 1982 defines land-primarily based sources of pollutants as activities that purpose marine pollution through rivers, coasts, roads, pipes and exhaust systems [1]. Whilst Article 1 of the Montreal suggestions defines: resources of Marine pollution from urban, commercial, and Agriculture, in particular the ones Coming from Coastal areas, Rivers, Waterways, environment, and Offshore activities seashores which might be nevertheless within the Jurisdiction of the country [2].

Marine pollution is a complex problem faced by the whole world. This ocean pollution mostly consists of manufactured chemicals, agricultural waste, and other hazardous chemicals. Household waste is also one of the contributors to this marine pollution apart from chemical waste. The impact of this pollutants is like a domino effect which is not most effective damaging to the marine biota that live in it however lower back again to humans themselves. Humans can be exposed to these pollutants circuitously by ingest.

The human need to use plastic is turning into increasingly more worrying. Numerous techniques had been taken to conquer the usage of non-biodegradable single-use plastics by switching them to more environmentally friendly materials Every year, about one million plastic bottles are purchased per five minutes and about 5 trillion non-biodegradable plastics are used worldwide [3]. This plastic is designed for one-time use and ought to be disposed of

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with care. in the meantime, these plastics cannot be degraded in a short time, so they are accrued and buried on a bigger scale. Scientists even state that this plastic waste could be a geological indicator based on the Anthropocene technology.

Latest research proposed that roughly 8.3 billion tonnes of plastic have gathered since the early 1950s, 79% of which has ended up in both disposal sites or the natural environment [4]. Each year, 8 million tonnes of plastic waste from deep inland areas ends up inside the ocean, on top of the expected 150 million tonnes that presently flow into marine environments [5]. Ten rivers alone, eight of them in Asia, convey extra than a quarter of all that waste into the oceans and create tremendous harm to economies, ecosystems, and societies. If the worldwide price of plastic production and waste maintains, then by 2050 the oceans may want to comprise more plastic than fish.

The Great Pacific Garbage Patch is a collection of Marine Corps garbage in the North Pacific. Marine waste is a collection of garbage that humans inadvertently throw away and eventually accumulates in the ocean to form lumps. The reason why this dust collects and grows is that it cannot be decomposed naturally or it takes time to completely decompose it. Most of the garbage collected is plastic waste that does not decompose naturally. Trash, which is likely decades old, fails to fully decompose, but then naturally breaks down into very small pieces with the help of the sun through photodegradation techniques, becoming waste known as microplastics. Oceanographers and ecologists say that about 70% of these microplastics do not actually sink to the ocean floor. Most of this waste comes from Styrofoam glass, food wrappers, bottle caps, plastic bags, plastic drinking bottles, and commercial plastic food wrappers.

Indonesia, an archipelago of more than 17,000 islands, and unfortunately, is assumed to be the second largest producer of ocean plastic pollutants in the world. This hassle occurred due to the mismanagement of waste whilst nevertheless at the mainland. This paper pursuits to investigate the proper strategy that the Indonesian government can take as a primary contributor to plastic waste worldwide and reduce ocean pollution. The purpose of this paper is to present an explanation of various data about how a social phenomenon occurs. Following its purpose, explanatory writing seeks to find causes and effects and reasons why something happens to be analyzed to produce evidence to support an explanation or prediction.

## METHODOLOGY

This qualitative research uses a method that takes into account the personal experiences of the participants. Qualitative research is a study that focuses on understanding the perspectives and social processes of participants [6]. Qualitative research is the research that aims to understand the phenomena to which the subjects of research are exposed such as behavior, perceptions, motives, actions, etc. holistically and through descriptions in the form of words and language, in a specific natural context and using various natural methods. Nonetheless, the information gathered in this investigation can be analyzed [7]. In addition to using qualitative methods in viewing the phenomena discussed, this paper also uses analysis of various secondary data and sources which are then processed into one complete data.

Sources of data used on this paper such as photos, pictures, and numbers are secondary data by researching the form of literature study, aiming to obtain information by the theme under study. Meanwhile, other information is obtained through books, research reports, scientific journals, theses, articles, and other written sources in print and from the references.

## RESULTS AND DISCUSSION

It is estimated that approximately 267 million people in the world use products wrapped in single-use plastic. Many objects around humans that contain the basic ingredients of disposable plastic that are inadvertently thrown away. As the fourth most populous country in the world, Indonesia is said to be one of the countries that generate about 190,000 tons of waste every day. About 57% of the waste produced is organic waste. Indonesia also contributes about 25,000 tons of plastic waste, of which at least 20% of the total waste produced ends up in rivers and coastal waters and is then carried into the sea [9]. Rubbish is often found strewn along the coast, which is then carried into the sea at high tide.

The total amount of plastic waste generated by the 192 coastal countries in the world is about 275 million tons. It is estimated that between 4.8 million and 12.7 million tons of plastic waste produced ends up in the ocean and is dumped into a Great Pacific Garbage Patch that is 3 times the size of the state of Texas [10].

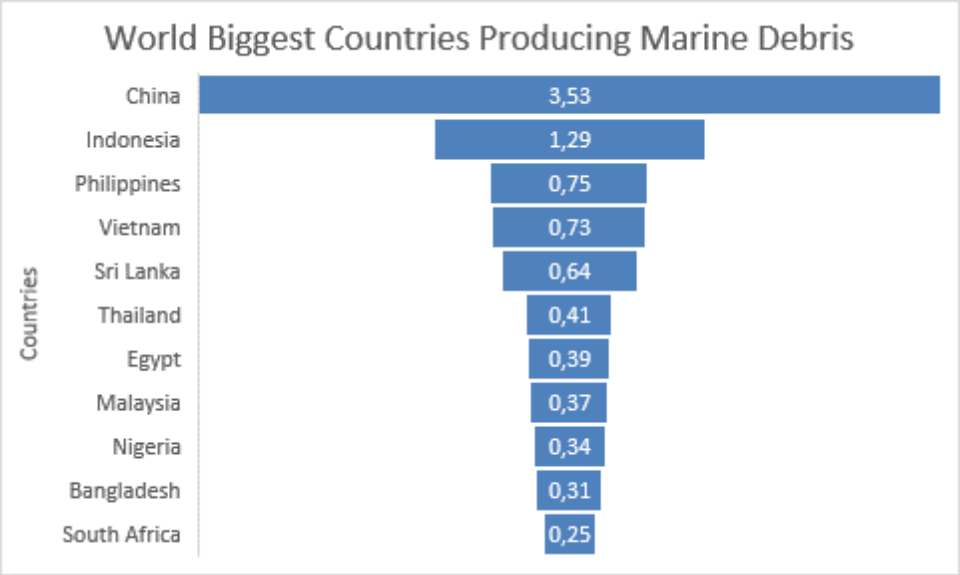


**FIGURE 1.** World Biggest Countries Producing Marine Debris in Million Tons Per Year (estimated)
*(Processing data with Statista.)*

Based on Figure 1, Indonesia produces 1.29 million tons of marine debris per year, and occupies the second largest position after China. Most of the major sources of plastic waste are countries in Southeast Asia. This problem arises from many factors, such as the size of the population, economic development, the amount of plastic consumption, and the government's role in overcoming the problem of single-use plastic use. Southeast Asian nations are also known as countries with emerging economic systems and lack of a good system for managing waste. The general public awareness of the importance of waste management remains low, and plenty of people carelessly throw away garbage and cause numerous problems. The garbage that is thrown away, mostly has plastic base materials that take a long time to decompose so much of this plastic waste ends up in the great garbage patch. The plastics observed to have a few shapes of toxicity are not always harmful to human health. The researchers examined the chemical compounds in ways that are very distinctive from how most people come into contact with them. Seafood is a popular dish enjoyed by humans. A study has shown that more than half of fish which have traded have been found to have consumed a plastic or micro/nano-plastics.

The title of the second largest producer of waste in the world is certainly not an achievement that Indonesia can be pleased with. The increasingly complex marine debris problem has become a concern for the Indonesian government. Through Presidential regulation no. 83 of 2018 regarding marine waste management, the government states that marine debris causes pollutants and harm to the environment and marine ecosystems and endangers human health. The Indonesian government is also aware that plastic waste is the most difficult component of waste to be decomposed naturally. To overcome these problems, the Indonesian government has committed to reducing the problem of plastic waste in the ocean by 70% between 2018 and 2025 with comprehensive and integrated acceleration measures. One of the strategies described in Article 2 of Presidential Regulation no. 83 of 2018, the Indonesian government is committed to implementing the National Action Plan for Handling Marine Debris (RANPSL). The following item describes the strategies implemented by the government including promoting a national movement to raise stakeholder awareness; waste management from land, coast and sea; Performing methods, strengthening institutions, supervising and applying the law, as well as conducting research and development.

In addition to government policies stipulated in Presidential Regulation No. 83 of 2018, the role and cooperation between government and society is also key to overcoming the marine debris problem in Indonesia. Early education is needed on the importance of disposing of waste in the right places and not dumping it in any way on rivers and beaches. The large amount of waste will also lead to serious problems, both small and large. Not only society, but also other stakeholders and industry players need to pay responsible and lawful attention to the waste disposal system.

## CONCLUSION

In order to overcome the problem of marine pollution caused by garbage, the Indonesian government has decided that Presidential Regulation No. No. 83 of 2018 on the National Action Plan for Handling Marine Debris (RANPSL). The other strategies also Behavioral Change, Reducing Leaks through Land, Reducing Waste Leakage from Activities at Sea, Law Enforcement and Funding also Biodegradable plastic from cassava. Continuing research and development are needed to find a material with the appropriate composition to replace disposable plastics and to ensure that the quality of these off-the-shelf products is not compromised.

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