

Implementation of Indonesia-Netherlands cooperation in overcoming plastic waste pollution through The ocean cleanup River project in Indonesia in 2018-2023

Ariesa Maryam Kusuma & Regita Endah Cahyaning Naya
Universitas Pembangunan Nasional “Veteran” Jawa Timur
Email: ariesakusuma02@gmail.com

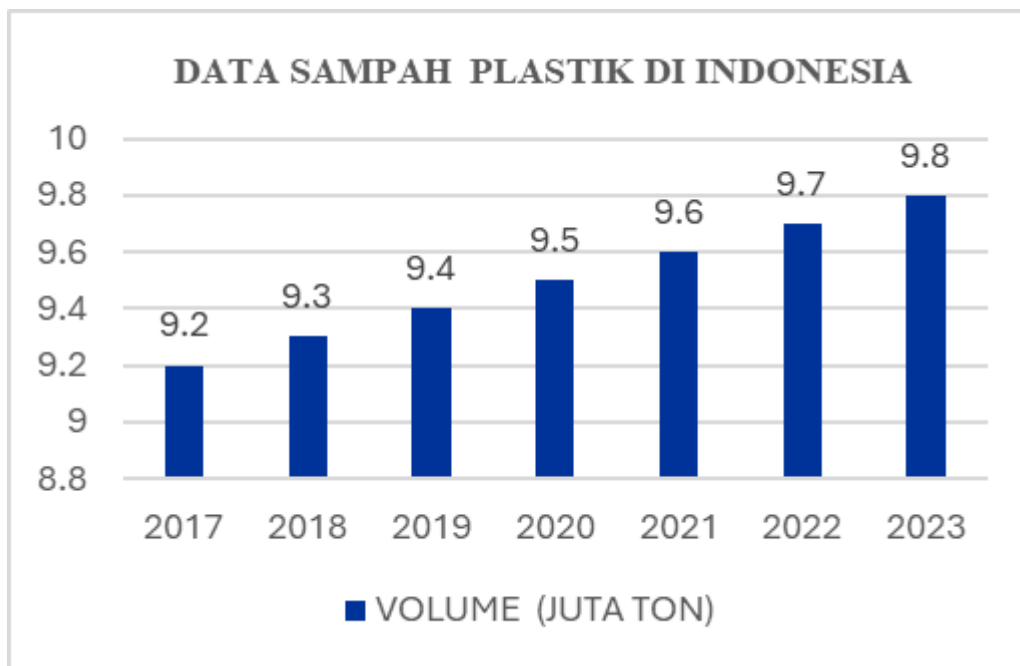
ABSTRACT

The problem of plastic waste pollution in Indonesia's rivers is still an urgent issue that must be addressed immediately to maintain aquatic ecology. Plastic waste in waters is quite threatening the ecosystems and marine life. Indonesia ranks 5th in the world as a contributor of plastic waste to the sea. As an effort made to prevent garbage from the mainland reaching the sea through rivers, the Indonesia government seeks cooperation with the Netherlands. This effort was carried out by the signing of the two countries in the MoU (Memorandum of Understanding) which contains an agreement that regulates cooperation in various fields, including waste management and water cleanliness. The collaboration paved the way for The Ocean Cleanup River Project in Indonesia, a project initiated by The Ocean Cleanup, a Netherlands-based organization that focuses on cleaning up polluted rivers around the world. This research focuses on the results of the implementation project by using qualitative methods.

Keywords: *international cooperation, environmental protection, plastic waste*

INTRODUCTION

Plastic waste is still one of the serious problems that threaten the environment, because of its increasing number and the nature of plastic that is difficult to decompose by natural processes. Waste pollution in Indonesia continues to increase every year, this is caused by many factors, one of which is the increasing consumption of the community which is getting bigger due to the increase in population density. Waste that is not managed properly appears not only on land but also in the ocean. This raises another problem with the big consequences. Based on a report from the Ministry of Environment and Forestry, Indonesia is the second largest contributor of waste in the world after China. Indonesia is in fifth place in the world as a country with poorly managed plastic waste. According to data from the Ministry of Environment and Forestry, the projection of plastic waste in Indonesia continues to increase every year. In 2017, the projection of national plastic waste reached 9.2 million tons. This amount is equivalent to 13.98% of the total waste generated in Indonesia (KLHK, 2020).



Graphs 1.
 Plastic waste data in Indonesia in 2017-2023
 (Katadatagreen, 2024)

In overcoming these problems, the Indonesian Government has received support from several international institutions and cooperation with other countries. In 2016, the Indonesian Government through the Ministry of Environment and Forestry and the Kingdom of the Netherlands signed a Memorandum of Understanding (MoU) in the cooperation framework to create a tool to clean plastic waste in rivers. Where in 2019, the River Clean up System (RCS) Technology conducted a collaborative study between the Indonesian government and the Kingdom of the Netherlands in implementing river cleaning tools in Indonesia which will start with the Jakarta area, precisely in the Angke River in the Cengkareng Drainage, North Jakarta. This collaboration is carried out as a commitment to finding solutions to reduce the volume of marine waste. As much as 80% of waste in the sea comes from land and flows through rivers to the sea. (Annur, 2024)

This Indonesia-Netherlands collaboration is carried out through the first The Ocean Cleanup river project program in Indonesia. The Ocean Cleanup is an organization from the Netherlands that is committed to tackling plastic pollution in the ocean by using advanced technology and cutting-edge innovation. On the other hand, Indonesia faces serious problems related to plastic waste that pollutes the environment, both on land and in waters. This pollution not only has a negative impact on the marine ecosystem, but also threatens human life that depends on these natural resources. Recognizing the magnitude of this challenge, The Ocean Cleanup and Indonesia have established a partnership that aims to combine technological expertise with local needs in dealing with this problem. By uniting these two major problems into one integrated solution, this collaboration is expected to be able to significantly reduce the amount of plastic

waste entering the sea through rivers in Indonesia, while having a positive impact on the environment and society. This initiative is an important step in global efforts to maintain the cleanliness of the ocean and protect the biodiversity in it, as well as strengthen Indonesia's commitment to achieving sustainable development goals, especially in terms of waste management and environmental conservation.

Interceptor is an innovation developed by The Ocean Cleanup to deal with plastic waste in rivers, which is one of the main sources of marine pollution. The process of developing this technology began with research in 2015, where experts worked to create an effective solution capable of capturing plastic waste before it reaches the ocean. In 2017, the Interceptor was first tested in the Netherlands to ensure the effectiveness and reliability of its technology under real-world conditions. After going through various improvements, finally in 2019, Interceptor was officially launched in Indonesia under the name Interceptor 001 (THEOCEANCLEANUP, Interceptor 001 – The First River Technology, 2017). The Ocean Cleanup project continues to grow and demonstrates a long-term commitment to tackling the problem of plastic pollution in the world's rivers. After successfully launching Interceptor 001 in Indonesia, this project did not stop there. In 2023, they launched the Interceptor 020, which is designed with greater capacity and capability to be used in rivers that have higher water flows and volumes of plastic waste. The launch of the Interceptor 020 marks a step forward in the project's operational scale, enabling more effective handling of plastic waste in major rivers around the world. (THEOCEANCLEANUP, The Ocean Cleanup Announces New Interceptor for Cisadane River, Indonesia, 2023)

How Indonesia's efforts in cleaning river due to achieving the SDG's target until 2030, this river is in poor condition, therefore a more government role is needed in the commitment to protect the environment (Fridayani, 2020). It is known that Indonesia has experienced water pollution that is quite concerning, therefore cooperation with the Netherlands through the Ocean Clean up can help Indonesia in innovation for river pollution cleanup. Judging from this, this organization is well innovating in handling plastic waste from upstream to downstream through their performance in the Great Pacific Garbage Patch (GPGP) (Cahyani, 2023). In this study, the author focuses on how to implement Indonesia-Netherlands cooperation in overcoming plastic waste pollution, innovation in managing plastic waste and commitment to protecting the environment through the launch of Interceptor in 2018-2023.

METHODS

In this research, the author uses a qualitative descriptive research type where this research describes real events or phenomena in human life. This type of research displays data without any manipulation or other treatment. The research was conducted on independent variables without correlating with different variables. This research uses a literature study data collection technique with secondary data sources. Literature studies aim to obtain information on similar research and explore theoretical studies and methodologies to utilize library sources to obtain research data. It is obtained from

various sources, such as books, journals, reports, databases, relevant news, and other documentation. In this study, the researcher uses a qualitative method analysis technique. This research method is an investigation to understand social problems, so this type of research relies on data collection whose process does not use statistical techniques or other numerical methods (Lamont, 2015), So this research method cannot be quantified, and the data produced from this analysis technique is in the form of words.

Interdependence concept

The concept of interdependence states that countries are not entirely independent actors, but countries depend on each other. Robert Keohane and Joseph Nye argue that international relations are influenced not only by military conflicts and state power, but also by non-military issues such as economic, political, social, and environmental issues. Complex interdependence has three characteristics, first, multiple issues where the issues that develop in each country are increasingly diverse, security issues are no longer the main issue that dominates relations between countries. Other issues such as economic and environmental issues are considered equally important. Second, the military has a decreasing role in resolving disputes between countries. Military power is not used as the main option in resolving issues between countries, especially industrialized countries, according to them military power is often inappropriate if used to achieve other goals such as economic prosperity and environmental sustainability. Global challenges require cross-country cooperation in the context of environmental issues such as climate change, deforestation, and pollution (water, and air). Third, in complex interdependence, there are multiple channels, namely the relationship between one society and another, including relationships that are interstate, transgovernmental, and also transnational transactions. The interactions that occur create a relationship of mutual dependence between one another, with the actors involved in this interaction being state actors and non-state actors. (Keohane & Nye, 2012)

ENGO

ENGO or Environmental NGO is an independent group that focuses on environmental conservation efforts, nature conservation, wildlife protection, waste management and advocacy for environmental policies, and increasing public awareness of environmental issues. ENGO has participated in and influenced the policy-making process at the UN conference. In raising awareness of environmental issues. In its action to voice environmental issues, ENGO will pressure the government to acknowledge existing problems with consumer boycotts, legal action, and education campaigns to attract public attention to environmental issues. ENGO has a major role in collecting scientific evidence of environmental degradation, publishing, and working to update environmental regulations. Environmental issues are very complex. The presence of ENGO in handling environmental issues can provide information on the implementation of policies or treaties of a country or other actor. (Cahyani, 2023)

RESULT AND DISCUSSION

As an archipelagic country with many rivers, some of which are included in the category of the most polluted rivers in the world. River pollution is caused by several factors such as industrial waste, domestic waste, and poor waste management. Indonesia is included in 8 of the 11 most polluted rivers in Asia. Where it is spread out in 2nd place after China. Based on data from the Ministry of Maritime Affairs and Fisheries, the composition of marine waste in Indonesia is dominated by plastic waste which reaches 40%. Rivers in Indonesia are the main route for plastic waste to the sea. Rivers polluted by plastic threaten aquatic life and local ecosystems. Not only that, this also affects human life that depends on rivers, because polluted rivers contain microplastics that can threaten human life.

The Cengkareng Drain located in West Jakarta has become a serious concern due to its high level of pollution. This Drain is far from clean, where the waste that fills this drain comes from domestic waste, plastic, and industrial waste. According to data from the DKI Jakarta Environmental Agency, the average amount of waste removed from the Cengkareng Drain reaches 50 to 100 tons per day, especially during the rainy season, the volume of waste increases because it is carried away by the water flow. Of the amount of waste transported, it is estimated that 40-50% of the waste is plastic waste, which means that there are around 20 to 50 tons of plastic waste transported every day (Kuswanto, 2023). Next, one of the polluted rivers in Indonesia is the Cisadane River. The river that crosses the Banten to Tangerang area, is experiencing environmental degradation due to pollution. Plastic waste and industrial waste are often found along the river. According to the Ministry of Environment and Forestry, this river contains high levels of microplastics, which can threaten the lives of local people who use the river water for irrigation and daily needs. From data obtained during the last two months of 2021, the volume of waste trapped in the Cisadane River waste trap increased from 2.4 tons to 3.5 tons. For January 2023, this figure dropped to more than 3 tons. The most waste comes from plastic bags, sachet packaging, plastic bottles, Styrofoam, and others.

In addressing this issue, the Indonesian government, represented by the Minister of Environment and Forestry of the Republic of Indonesia, Siti Nurbaya, collaborated with the Kingdom of the Netherlands, represented by the Minister of Infrastructure and Environment, Sharon Djikma, to sign a cooperation agreement in the fields of climate change, waste management, and circular economy. Where this cooperation involves projects such as the "River Clean-up System" (RCS), which is designed to reduce plastic waste in rivers and prevent it from flowing into the ocean. This cooperation shows the commitment of both countries in finding innovative and sustainable solutions to overcome the problem of plastic pollution.

Interceptor 001 is the first interceptor made after the cooperation between Indonesia and the Netherlands was formed. The Inceptor itself is The Ocean Cleanup's first river

cleaning system, designed and built in 2017. The interceptor was deployed and tested in Zuidland, South Netherlands, after which adjustments were made in Capelle a/d IJssel and Batam Indonesia during the first half of 2018, before being deployed in Jakarta in 2019. In February 2019, the Interceptor system was installed at Cengkareng Drain, Jakarta, and moored with five anchors at the riverbed. In June 2019, the interceptor was fully operational and operational. During the early months, interceptors had challenges in the form of storage and dismantling of garbage. The goal of the project is to learn as much as possible from operations in a highly polluted environment.

The Interceptor was created through research that includes three main scopes: measuring the quantity and typology of plastic waste in rivers (Plastic Waste Flow), developing an effective and safe sorting system for processing plastic waste (Facility Design), and identifying technologies and industries that are able to recycle plastic waste from rivers (End Market Solution). After five months of operation in the pilot project, Interceptor 001 successfully intercepted 1.8 tons of waste per day, including 466 kg of plastic waste per day in 24-hour operation, with 60% of waste flowing through the river in the dry season successfully recovered. (Mardiyah, Farhati Mardiyah, 2019)

Seeing the success of interceptor 001, with satisfactory results, supported by the Joint Declaration agreed upon when Indonesia hosted the G20 Summit in 2022. Making the Cisadane River the next river cleanup target, this river is a top priority for the Indonesia authorities and The Ocean Cleanup in plastic cleanup efforts, especially because the installation of Interceptor 020 in this river is an important step in The Ocean Cleanup's mission to prevent 80% of plastic leakage into the global ocean, while helping Indonesia achieve the target of reducing marine plastic waste by 70% by 2025. The Interceptor 020 installation project involves collaboration with BBWS partners Cilliwung-Cisadane (foreman), Tangerang Regency – DLHK (waste operators and transporters), and Tanjung Burung Waste Bank (waste sorters). With the cooperation between the Governments of Indonesia and the Netherlands, especially the Coordinating Ministry for Maritime Affairs and Investment, and the Ministry of Public Works and Public Housing, which has assisted The Ocean Cleanup in facilitating the 020 interceptor installation project on the Cisadane River. Interceptor 020 is planned to start operating at the end of 2023 by estimating that 1000 tons of plastic waste will be taken from the Cisadane river which will flow downstream in the Java river per year.

CONCLUSION

The number of plastic waste that continues to increase every year is a threat to the environment, especially to the river ecosystem. This is something that needs to be addressed together, therefore as a way to optimize pollution control, a collaboration was created based on the commitment to care for the environment by Indonesia and the Netherlands. The collaboration is implemented through The Ocean Cleanup, where this collaboration involves the "River Cleanup System" (RCS) project in the form of an interceptor designed to reduce plastic waste in the river and prevent it from flowing into the sea. The use of this interceptor has been proven to help clean the river by

systematically sorting plastic waste, which can prevent plastic waste from going to the sea. The plastic waste that has been sorted will then be processed and recycled. With the success of the installation of interceptor 001 in 2019 which is located in the Cengkareng channel, in late 2023 the 020 interceptor was launched on the Cisadane River and has been functioned until now with good results.

The responsibility for protecting the environment cannot be imposed on only a few parties, therefore from all levels of society must always maintain the cleanliness of the environment. And with this implementation, it is hoped that in the future Indonesia can establish cooperative relationships with other countries that focus on the environment.

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