



## CREATION OF EDUCATIONAL SIGNS ON THE DECOMPOSITION TIME OF INORGANIC WASTE AS AN EFFORT TO IMPROVE ENVIRONMENTAL LITERACY ON TERONG ISLAND

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**Abstract:** Waste management issues remain a crucial issue on Terong Island, Belakang Padang District, Batam City, especially in coastal areas that do not yet have adequate waste management facilities such as temporary storage sites (TPS) and final disposal sites (TPA). The Community Service Team carried out a work program as an effort to increase community literacy and environmental awareness through an educational and participatory approach. The series of activities included socialization of the waste sorting movement, community service with residents, installation of educational signs about the length of time it takes for inorganic waste to decompose, and the creation of applicable supporting media. The methods used included field observation, sign design analysis, and implementation of educational signs in strategic locations. The results of the activities showed an increase in the understanding of the people of Terong Island regarding the importance of reducing the use of items that produce inorganic waste. These educational signs serve as a means of continuous visual learning while strengthening the collective awareness of the community in maintaining the cleanliness of the coastal environment. Thus, the creation of educational signs has proven to be effective as a strategy in efforts to increase environmental literacy on Terong Island.

**Keyword:** Environmental Literacy, Inorganic Waste, Educational Signs, Terong Island.

### INTRODUCTION

According to Domi et al., (2025) , waste in general is something that is discarded because it is no longer useful, whether it is waste from human, animal, or plant activities. Based on Law Number 18 of 2008 concerning Waste Management, waste is the residue of human daily activities or natural processes in solid form. Waste is a significant and complex environmental problem, especially inorganic waste. Yusran et al., (2024) states that inorganic waste such as plastic, cans, and glass bottles take tens to hundreds of years to decompose, causing significant negative impacts on the environment, polluting the soil, water, and air.

As explained by Varliana and Tarwiyani (2023) , Pulau Terong is one of the islands in the Belakang Padang District. The Pulau Terong sub-district consists of a chain of inhabited and uninhabited islands, with the inhabited islands including Pulau Terong, Teluk Kangkung, Teluk Sunti, Teluk Bakau, Pekasih, and Geranting. Pulau Tumbar, Tanjung Ladan, Pulau Buce, Pulau Sayak. The uninhabited islands include Pulau Jangkat, Pulau Telan, Pulau Lutung, and Pulau Daun. The village of Pulau Terong is located at the far end of the Belakang Padang subdistrict.



This island is characterized by dense settlements with quite diverse community activities, but supporting facilities in the field of waste management are still very limited, such as the unavailability of temporary storage sites (TPS) and final disposal sites (TPA). The problem of inorganic waste management is a serious challenge on Terong Island, Belakang Padang District, Batam City. This small island has a population of around 1,000 people, but waste management facilities such as waste banks, sorting systems, and final disposal sites are still limited. As a result, most inorganic waste is dumped into the sea or burned in residential areas.

The issue of waste has often been discussed in various fields, which is a complex problem for people who are less concerned and less sensitive to environmental pollution. Improper waste management can cause environmental pollution and disrupt aesthetics. The community's lack of discipline regarding cleanliness can create an unfavorable environment. Most people consider burning waste to be part of waste management, which can cause environmental pollution and health hazards. Islamiah et al., (2025) suggest that creating educational signs about how long it takes for inorganic waste to decompose is one way to educate the public about the dangers of inorganic waste. Anggraini et al., (2025) mention that inorganic waste such as cans, plastic bottles, milk cartons, and styrofoam take tens or even hundreds of years to decompose naturally.

According to Educational efforts and collective action are carried out so that the community can reduce the use of disposable products, sort waste, and manage it properly. Educational activities are carried out to increase household awareness of environmental concerns through increased knowledge of waste management. One of the efforts that has been made is the creation and installation of educational signs containing information about the length of time it takes for inorganic waste to decompose. These signs serve as a visual educational medium that is easily accessible to the public, providing direct information about the environmental impact and the importance of responsible waste management. According to Mahyar (2024) , inclusive and accurate visualization triggers collective involvement and action on environmental issues. Through the installation of these educational signs, it is hoped that there will be an increase in public awareness not to litter and to start sorting and managing waste properly.

The installation of these educational signs is one of the strategic actions to build better environmental literacy. With clear and easy-to-understand information about how long inorganic waste takes to decompose, the community is expected to be encouraged to actively participate in maintaining the cleanliness and sustainability of the island's environment for a healthier and more



sustainable future. This situation necessitates an increase in environmental awareness and literacy among the community, particularly in waste management to prevent pollution.

## **METHODOLOGY**

This community service program uses a qualitative descriptive approach. Waruwu (2022) explains that qualitative descriptive is a method that has several data collection techniques, namely observation, interviews, and documentation studies. The focus of the activity is on creating educational signs containing information about the decomposition time of various types of inorganic waste. This approach was chosen because it is considered effective in conveying environmental messages directly to the community. The target of this activity is the entire community of Terong Island, although in practice it is carried out independently by the community service team without direct involvement from the community.

The location and time of the community service was on Terong Island, Belakang Padang District, Batam City in August 2025. This program was chosen because Terong Island faces serious problems related to waste management, especially inorganic waste, due to the unavailability of temporary waste disposal sites (TPS) and final waste disposal sites (TPA). This condition has prompted some residents to dispose of inorganic waste directly into the sea, causing environmental pollution.

The stages of the activity included observing the condition of waste management on Terong Island, identifying problems through brief interviews with the community, planning the program, procuring materials and tools, making educational signs, and installing them in strategic locations.

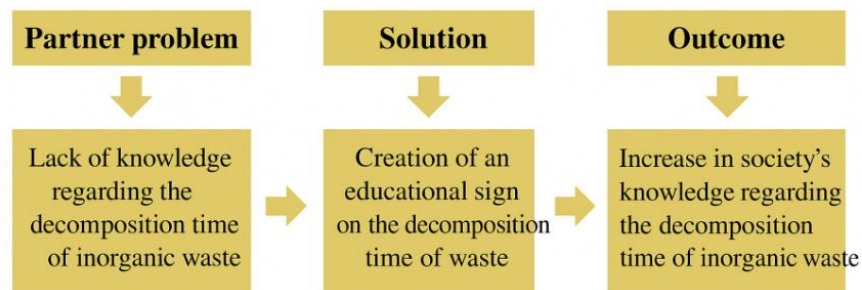


Figure 1. Implementation method

## **RESULTS AND DISCUSSION**

The community service activity, which involved creating educational signs about the decomposition time of inorganic waste, was successfully carried out on Terong Island, Belakang



Padang District, Batam City, on August 18-21, 2025. All stages of the activity went according to plan, from observation, program formulation, material procurement, the manufacturing process, to the installation of signs in strategic locations.

The initial stage of the activity was field observation on Terong Island with the aim of identifying the waste management system implemented by the community. Based on the results of observations and brief interviews, it was found that this island does not have a Temporary Disposal Site (TPS) or a Final Disposal Site (TPA). Most household waste is managed by burning it in open areas or dumping it directly into the sea. This condition indicates a serious problem in waste management and the need for educational efforts to raise public awareness about the long-term impact of inorganic waste on the environment.

Based on these observations, the team then formulated a program to create educational signs about the decomposition time of various types of inorganic waste. Signs were chosen as the medium because they are simple, easy to understand, and can serve as a long-term source of information. The next step was to procure materials, including wooden boards, bloti wood, nails, paint, pilox, printed paper, and brushes, with the support of tools such as saws, sanders, sandpaper, and hammers.

The signboard production process involved several stages, namely cutting the wood to the planned size, smoothing the surface using sandpaper, and applying a base coat of paint to make the signboard more durable. After that, the information was written using paint and pilox with the help of printed text to produce a neat and easy-to-read display. The information presented includes the estimated decomposition time for several types of inorganic waste, namely plastic bags (10-20 years), plastic straws (100 years), plastic bottles (250 years), cans (500 years), and styrofoam, which is non-biodegradable.

The final stage of the activity was the installation of signs in strategic locations that were easily accessible and visible to the wider community. The installation location was chosen in the Village Hall area because it is an area that is frequently passed by residents and is easily visible. Through this method, it is hoped that the people of Terong Island will gain new knowledge about the impact of inorganic waste and be encouraged to be more prudent in managing household waste.



Figure 2. Procurement of materials and Production of educational signs

The main product of this activity is an educational sign containing information about the estimated decomposition time of several types of inorganic waste. The information displayed includes plastic bags (10–20 years), plastic straws (100 years), plastic bottles (250 years), cans (500 years), and styrofoam (non-degradable). This output is expected to function in the long term as a visual educational medium that can increase public knowledge regarding the environmental impact of uncontrolled disposal of inorganic waste.

During the activity, the community's enthusiasm was evident in their attention to the signboard's production process and content. Although this activity was carried out independently by the community service team, the signboard received positive responses from residents because it provided new knowledge that was previously not widely known. Thus, this activity not only produced a physical product in the form of an educational signboard but also had a social impact in the form of increased public awareness to be more prudent in managing household waste.



Figure 3. Installed signboard and community service team

## CONCLUSION AND RECOMMENDATIONS



## **Conclusion**

The community service activity in the form of creating educational signs about the length of time it takes for inorganic waste to decompose on Terong Island has been carried out successfully and achieved its objectives. Through the stages of observation, planning, creation, and installation of signs in strategic locations, this activity has succeeded in producing educational products that are simple, informative, and easy for the community to understand. The signs have made a positive contribution as a visual educational tool that can increase public knowledge and awareness of the impact of inorganic waste on the environment. The enthusiasm and positive response from residents show that this program can be a first step in building environmental literacy on Terong Island, while encouraging the community to be more prudent in managing household waste.

## **Recommendations**

Although this activity has been successfully implemented, there are several obstacles that can be evaluated. One of them is the limited time, so that the direct involvement of the community in the signboard making process has not been optimal. In addition, the absence of a follow-up system in waste management can reduce the effectiveness of the education provided. Therefore, it is recommended that similar activities in the future actively involve the community, for example through simple training or workshops on waste management. In addition, continuous support from the local government and related parties is needed to provide adequate waste management facilities so that the educational messages conveyed through the signs can be followed by concrete actions in everyday life.

## **ACKNOWLEDGEMENTS**

The author would like to thank Riau Kepulauan University for providing support and opportunities in carrying out community service activities on Terong Island, Belakang Padang District, Batam City. Gratitude is also extended to the community of Terong Island for granting permission, providing information, and offering support throughout the activity, enabling the program to be carried out successfully. Appreciation is also given to the entire community service team for their collaboration and contributions at every stage of the activity, from planning and implementation to the preparation of this article.

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