



Ushering in the Age of Endemic

THE 11TH INTERNATIONAL INNOVATION, INVENTION & DESIGN COMPETITION INDES 2022

EXTENDED ABSTRACTS BOOK



e ISSN 2756-8733



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Perpustakaan Negara Malaysia

Cataloguing in Publication Data

No e-ISSN: e-ISSN 2756-8733



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The 11th International Innovation, Invention and Design Competition 2022

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*Academy of Language Study
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EMPOWERMENT OF CIRCULAR ECONOMY THROUGH THE SAKO APPLICATION (SAMPAH DAN EKONOMI) AS A STIMULANT FOR IMPROVING GREEN ECONOMY

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ABSTRACT

The lifestyle of modern society has made developments that exploit natural resources and threaten life. Development that relies on production growth has proven to be able to improve the economy. But it has failed in social and environmental terms. The various problems caused such as greenhouse gas emissions, reduced green land, environmental damage, and inequality in the social status of the community are phenomena that have not been resolved until now. The concept of a green economy which aims to improve the economy through development activities that do not ignore environmental sustainability is an alternative solution that can be taken in line with the SDGs program which is the global action plan of world leaders. The main problem that is a source of environmental pollution throughout the world, for example, is waste, especially plastic waste. Currently, consumption and production waste cannot be managed properly, even though if managed in an integrated manner it can generate economic value and can also generate a circular economy. This paper aims to analyze the extent to which integrated waste management in several countries, especially ASEAN in supporting the circular economy through the development of a green economy, and supports the concept of a sustainable economy. It is necessary to have digital innovation of green technology such as Sako (*sampah dan ekonomi*) to support this sustainable development program.

Keywords: *green economy, circular economy, sustainable business, digital technology.*

1. INTRODUCTION

Waste or rubbish is a problem faced by ASEAN countries. One of the waste problems is the unintegrated waste management. The Asian region is the region with the fastest-growing waste production in the world. The largest waste producers in this Asian region include China, Indonesia, Vietnam, the Philippines, and Sri Lanka. The 2015 McKinsey study shows that there are two main triggers for the leakage of plastic waste, namely uncollected waste, and the low value of certain types of plastic. Integrated waste management includes sorting waste, transporting waste and recycling waste. The lack of integrated waste management is inseparable from the lack of education regarding good waste management. In fact, if waste is managed properly, meaningless waste can become valuable as it is recycled properly. In addition, waste is also a contributor to greenhouse gas emissions if the decomposition is carried out by burning. Indonesia is actively participating in efforts to mitigate greenhouse gas emissions to prevent an increase in emissions, as stated in Indonesia's Nationally Determined Contribution (NDC) which was submitted to the UNFCCC in July, 2021. Indonesia also has a roadmap towards carbon neutrality by 2060 or sooner according to its long-term strategy for

low carbon and climate resilience in the Long-term Strategy on Low Carbon and Climate Resilience 2050 (Erwinsyah, 2021).

Based on Ocean Conservancy data at the International Coastal Clean-up (Ocean Conservancy, 2017), there are 10 types of waste found on beaches worldwide. One of them is plastic waste in the form of 314,649 tons of food wrappers; 275,483 tons of plastic bottle caps; 205,687 tons of plastic drinking bottles; 125,973 tons of plastic straws and stirrers, 85,079 tons of plastic shopping bags, and 77,014 other plastic packaging. Every day, plastic waste continues to increase along with the high public consumption of plastic use. Plastic is one of the causes of environmental pollution because plastic waste has a longer recycling time than other materials. The following is the largest amount of waste data in the world's coasts according to its classification in 2017:

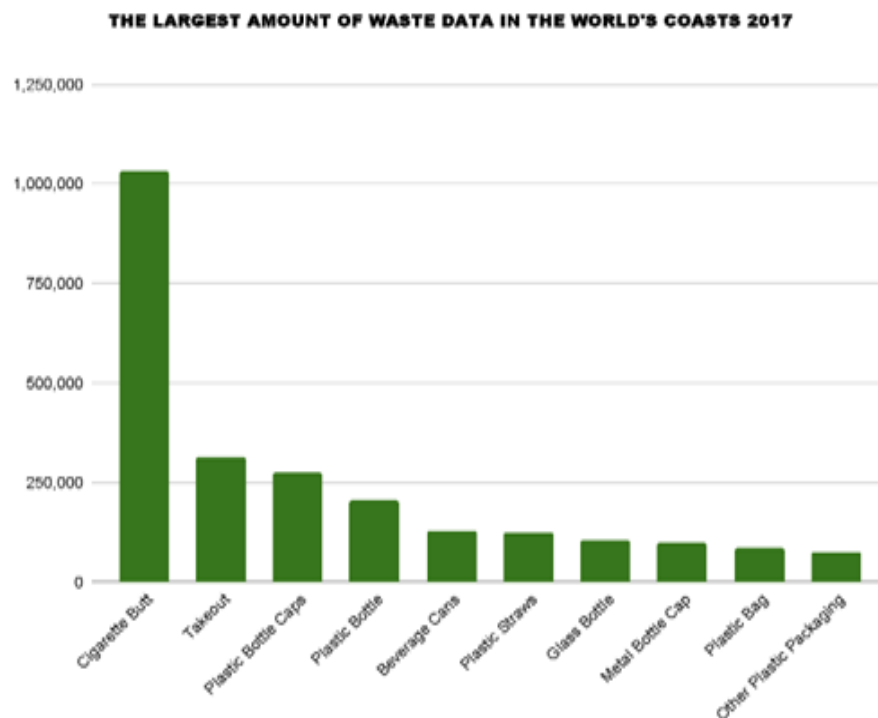


Figure 1 The World's Coast Largest Amount of Waste Data (2017)

Sustainable Development Goals (SDGs) are global action plans agreed upon by world leaders to maintain a sustainable increase in the economic welfare of the community, a development that maintains the sustainability of community social life, a development that maintains the quality of the environment and development that ensures justice and the implementation of good governance. maintain the quality of life from one generation to the next. The SDGs have global and national commitments to improve the welfare of the community, which are listed in 17 goals. Waste reduction is one of the SDGs goals listed in goal point 12, namely responsible production and consumption. Goal point 12 has 8 main targets, one of which is to halve the amount of global food waste per capita at the retail and consumer levels and reduce food losses

throughout the production and supply chain including post-harvest losses by 20230.

Waste banks have been implemented by several ASEAN countries, one of which is Thailand. The waste bank is managed by the community and the community who care about waste in Rayong Province (Fitriyani, 2019). This community not only manages plastic waste, but also fosters the community to utilize organic waste, such as vegetable and fruit waste into compost. The garbage collected by the community is paid for by the local community according to the quality of the plastic and the level of cleanliness. The cleaner the waste, the higher the price offered; the price per kilogram can even reach 7 baht or 3,500 rupiah. Garbage sold by the community will be recycled by the local community. However, most waste banks still use traditional systems and have not been digitized. A circular economy is an approach to promote the responsible and cyclical use of resources that is supported as a policy to minimize the burden on the environment and stimulate the economy. According to Georgeson et al., (2017), over the last decade, the green economy has emerged as an important policy framework for sustainable development in both developed and developing countries, providing a framework for producing societies that are more resource-efficient, lower carbon, less environmentally damaging, and more socially inclusive. According to the 2020 Circularity Gap Reporting Initiative (CGRI) report, the world's circular economy decreased from 9.1% in 2018 to 8.6% in 2020. The Netherlands is the leading country in the circular economy because it has special programs such as Holland Circular Hotspot and Circular hub (Morseletto, 2020). which is an incubator for anyone interested in the development of sustainable circular implementation. Currently, many digital technology innovations are developing, so this encourages various sectors to carry out digitalization innovations, including waste banks that must be integrated online.

2. FINDINGS

Based on research by Geng, Sarkis and Bleisch (2019), several countries including China, South Korea, China, the European Union, Japan, the United States, Brazil, and India have implemented industrial parks that use the principles of a circular economy, legislated for environmentally friendly designs, established networks for sharing and recycling resources. However, these efforts are still not able to shift the global industrial giants that have an impact on greenhouse gas emissions. Georgeson et.al., (2017) said that during the last decade, the green economy has emerged as an important policy framework for sustainable development in both developed and developing countries, developing and providing a framework to produce societies that are more resource-efficient, lower in carbon production, less environmentally-damaging, and more socially inclusive.

Training and mentoring in Timor Leste that have been carried out through Ecosista innovation has an impact on partners in the use of social media for environmental socialization activities and marketing of recycled plastic products. Partners also gain the skills to recycle other types of plastic waste and make it into a variety of products. Even though the program has been

implemented well and the benefits are felt by partners, there are still challenges that partners must face in distributing their products to the market, as well as government support that has not been optimal, and the economic conditions (Sugito & Riyanto, 2021). Indonesia's environmental diplomacy is carried out at the regional, national, and global level. At the global level, Indonesia's environmental diplomacy is carried out through international meetings and conferences related to marine plastic waste. At the regional level, Indonesia's environmental diplomacy is carried out through the ASEAN regional organization. The purpose of Indonesia's environmental diplomacy through ASEAN is to encourage joint commitments from member countries ASEAN in dealing with marine plastic waste. Therefore, Indonesia has a role in every stage of environmental diplomacy in ASEAN, starting from the initiation stage, problem definition, initial position statement, preparation of the framework of action and final negotiations, to the implementation stage with the launch of the Re ASEAN Regional Action Plan to minimize waste.

3. METHODOLOGY

This writing method is using a literature study method by analysing relevant journals, information through web-based electronic media, research results, and so on. As for the realization of the output of this plan is the plan and development of the application Sako (*Sampah dan Ekonomi*) using the prototype model. A prototype model is the process of making a software model which is the initial stage of an application design that can provide detailed information to identify the expected needs of an application. The prototype model stages consist of needs analysis, planning, and application testing.

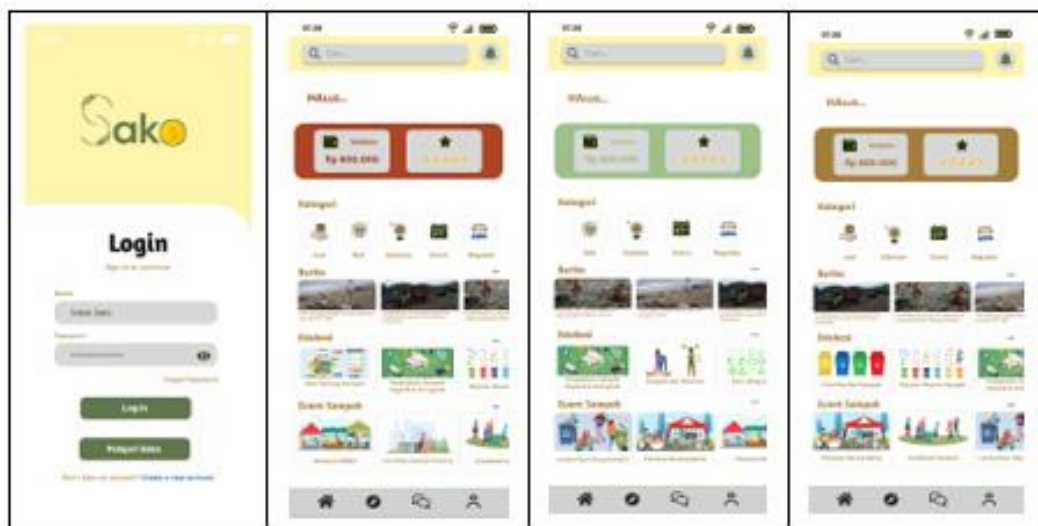


Figure 2 Prototype Model

4. CONCLUSION

The result of this research is the design of an application system named Sako. This application facilitates the public to buy and sell waste through smartphones to minimize untreated inorganic waste. This application consists of 3 user roles, namely public users or consumers, collectors or garbage collectors, and producers. There are several main features in this application, namely buying and selling waste, waste education, waste events, and regulations. The business processes in this application can benefit all related parties, and thus the community is expected to participate more in realizing a green economy through integrated waste management efforts. Thus, sustainable development can also be realized, because basically, the main principle of sustainable development is that current and future needs can be met, so it can be said that the green economy is the main basis for sustainable development. Waste management is still not integrated due to the lack of education related to the human environment. Then, the lack of public understanding of waste. So far, most people still view waste as useless waste, not as a resource that needs to be utilized. The community in managing waste still relies on the end-of-pipe approach where waste is collected, transported, and disposed of to the final waste processing site. In fact, piles and piles of garbage can potentially release methane gas (CH₄) which can increase greenhouse gas emissions and contribute to global warming.

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Surat kami : 700-KPK (PRP.UP.1/20/1)

Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
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Tuan,

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Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

SITI BASRIYAH SHAIK BAHARUDIN
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Setuju.

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