



In the Anthropocene: Strategic Initiatives for Sustainable Environmental Protection In Batam City

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ABSTRACT

This paper explores how companies use social networks to alter the relationship between individuals and the environment, focusing on plastic waste pollution. Environmental issues like plastic pollution have become significant disruptions, prompting stakeholders globally to mitigate their impact through Sustainable Development Goals (SDGs). Previous research identifies plastic as a major challenge in the Anthropocene era, particularly affecting marine ecosystems. In response, the company Free The Sea in Batam city was established to mobilize the community in recovering and recycling ocean plastic waste into high-quality products. This study examines how Free The Sea engages individuals and communities in protecting the ocean from plastic waste using social capital and networked social movement theory. Data were collected through non-participant observation and documentation from the Free The Sea community and analyzed qualitatively using the Miles, Huberman, and Saladana (2014) model. Findings indicate that by expanding social networks to promote environmental awareness, Free The Sea has fostered collaboration on marine plastic waste issues, transforming individual and group interactions and their environmental impact. This research contributes to environmental sociology and social movement theories and offers practical insights for policymakers and non-profit organizations in enhancing social connections.

Keywords: *anthropocene; plastic pollution; social capital; social movement*

INTRODUCTION

In recent decades, plastic waste has become a major concern due to its contribution to global climate change (Chandegara et al., 2015; Kojima et al., 2023; Mallick et al., 2021; Pilapitiya & Ratnayake, 2024). Much of the plastic waste ends up in landfills, releasing methane and carbon dioxide. Carbon dioxide from the combustion of petroleum products traps heat radiation from the air, ultimately resulting in changes in the global climate (Chandegara et al., 2015). Pilapitiya and Ratnayake (2024) state that plastic waste causes severe environmental damage, affecting both terrestrial and marine ecosystems. Furthermore, plastic waste can degrade into micro and nano sizes, spreading through air, water, and soil, impacting various species and posing health risks such as cardiovascular diseases, chronic kidney diseases, birth defects, and cancer. In the context of COVID-19, plastic waste pollution can damage various habitats and ecosystems, affecting their natural functions and reducing water quality due to the use of masks or medical waste made from plastic (Mallick et al., 2021).



The issue of plastic waste is becoming increasingly complex, especially as we are currently facing a geological period where human activities significantly impact the Earth and its ecosystems. This era can simply be referred to as the Anthropocene (Lewis & Maslin, 2015). Steffen et al. (2007) argue that human activities have become so extensive and profound that they rival the great forces of nature, pushing the Earth into terra incognita, an unknown territory. The Anthropocene era is also characterized by human behavior dominated by unsustainable consumption patterns. In this context, society today prefers single-use plastic products to support daily life due to the efficiency these products offer. Consequently, single-use plastics contribute to the increasing volume of plastic waste. It is not surprising that the excessive volume of plastic waste leads to overburdened landfills, and eventually, this waste is discarded into the ocean

Previous research has shown that the use of single-use plastics and the increasing volume of plastic waste in the oceans present a significant challenge in the Anthropocene era. Research conducted by Ford et al. (2022) found that plastic waste is closely linked to climate change, with both issues occurring in marine environments and affecting species health, such as coral reefs experiencing disease spread and bleaching due to plastic pollution and climate change. At the end of its life cycle, plastic waste disposal methods, such as incineration, tend to have the highest climate impact due to the significant greenhouse gas emissions compared to other methods. Additionally, climate issues such as flooding and extreme weather will exacerbate the spread of plastic waste in natural environments. The study by De-la-Torre et al. (2021) found that the interaction of plastic waste with environmental and anthropogenic conditions creates new forms of pollution. The Anthropocene era has even led to the formation of new types of plastics, such as plastiglomerates, pyroplastics, plastic crusts, and anthropoquinas. These new plastic formations pose various environmental threats, including the release of toxic chemicals, ingestion by marine biota, and the potential transport of invasive species and pathogens. These new plastic formations can impact marine environments in various ways based on their characteristics.

The problems arising from plastic waste have justified researchers' concerns and attracted the attention of the public and government sectors globally. Plastic pollution and the climate crisis are competing for public attention and policy-making (Ford et al., 2022). Currently, the world produces more than 400 million tons of plastic waste annually. This amount is projected to double by 2040 if no action is taken (Pristiandaru, 2023). Additionally, around 8 million tons of plastic waste end up in the oceans each year (National Geographic Indonesia, 2020). Therefore, in terms of sustainable development discourse, the United Nations Environment Program (UNEP) initiated an Intergovernmental Negotiating Committee on Plastic Pollution to address the impending threats of plastic waste pollution. This initiative resulted in a draft released by UNEP for a legally binding global agreement to end plastic pollution. This draft, which addresses the entire life cycle of plastics, was reviewed in Nairobi and is targeted for completion by the end of 2024 (UNEP, 2023).



Batam City is one of the cities in Indonesia facing plastic waste problems due to the high usage of single-use plastics. Daily, Batam City can generate up to 200 tons of plastic waste, potentially threatening ecosystems (Aris, 2019). This plastic waste significantly impacts the lives of the residents of Tanjung Uma, a village in Batam City. This coastal village is notoriously dirty and filled with waste, as it has been the dumping ground for decades. The damaged ecosystem due to plastic waste also affects the economic activities of fishermen in Tanjung Uma (Saputra, 2022).

Plastic waste can indeed hinder the lives of Batam City residents. Therefore, one of the companies in Batam City, Free the Sea, is trying to mitigate the impact of plastic waste by offering recycling and providing economic value from the recycled products. This initiative helps eliminate plastic sources in the ocean while supporting the community to escape poverty. Free the Sea also focuses on regenerating and restoring socio-ecological systems, starting from the island of Batam in Indonesia. Furthermore, to create a broader impact, the company collaborates with local waste banks to help collect plastic waste from the ocean and several local businesses to collect and recycle plastic waste. This indicates that Free the Sea is striving to build social capital to achieve its goals. Additionally, to support and promote the company, they also run campaigns on digital media, such as their website and Instagram.

Social capital, which includes social networks, norms, and trust within a community, can be an effective tool in supporting environmental initiatives. By leveraging social capital, companies can build strong cooperation with various stakeholders, including local communities, governments, and non-governmental organizations. Through campaigns, companies can also share resources, knowledge, and technology needed to address environmental issues more effectively. Therefore, this research aims to discuss how the strategic initiatives developed by Free the Sea as a multinational company can mediate the environmental crisis caused by plastic waste pollution in the ocean. Furthermore, this research also seeks to demonstrate how social capital can be used to transform the relationships between companies, people, and the environment in a more inclusive way, thereby strengthening multi-stakeholder cooperation and supporting the realization of sustainable development discourse.

METHODS

This research employs a qualitative method to explore and understand the meanings derived from social or humanitarian issues (Creswell, 2016). The study involves the collection of descriptive data, such as non-participant observations and documentation, which are then interpreted to identify specific themes or patterns. Data is gathered from observations and documentation from various sources, including news, articles, and digital media related to the company Free the Sea. Furthermore, the data is analyzed using the data analysis techniques of Miles et al. (2014). After the data is collected through observation and documentation and has been condensed, it will be presented in the form of narratives and matrices, followed by drawing conclusions. To analyze the



research results, the researcher uses Fukuyama’s concept of social capital (2000) and Castells’ theory of networked social movements (2015).

RESULT AND DISCUSSION

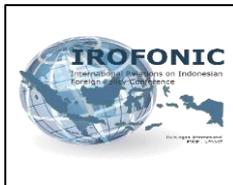
Unraveling the Social Capital of Free the Sea

In the corporate context, social capital is defined as the quality of relationships a company has with its stakeholders, which can enhance profitability and company valuation by fostering trust and cooperation (Servaes & Tamayo, 2017). Fukuyama (2000) explains that social capital is a set of shared informal values or norms among members of a group that enables them to work together effectively. According to Fukuyama (2000), social capital includes trust, norms, and networks that facilitate coordination and cooperation for mutual benefit. These aspects of social capital are used in various fields, including governance, community empowerment, and environmental management, to improve social and economic outcomes and investment opportunities (Fathy, 2019; Robison et al., 1999).

Wik Group is a global manufacturing company that operates in various countries, including Indonesia. The company was first established in Germany in the 1950s. PT Wik itself has a mission to create change regarding plastic waste by establishing Free the Sea. Free the Sea is a company actively developing a business model that promotes marine regeneration, social balance, and a circular economy. Moreover, Free the Sea, together with Wik Group, contributes to addressing plastic waste issues socially and environmentally, as well as empowering communities around Batam. Researchers found that Free the Sea, as a company utilizing social capital, strives to build a sustainable environmental condition through circular economic activities that produce high-quality products from plastic waste polluting the sea and the surrounding environment of Batam City. The findings include at least three aspects of social capital used by Free the Sea to reduce environmental problems with a circular economy approach. This can be seen in Table 1, which presents the social capital data of Free the Sea from the observations and documentation conducted by the researchers.

Table 1. Social capital of Free the Sea

No	Social Capital Aspect	Findings	Links
1	Trust enables individuals within a group to interact and cooperate with the expectation that other members will behave honestly and reliably (Fukuyama, 2000).	Free the Sea has gained the trust of various communities, including waste banks, schools, hotels, and local businesses, to collect and recycle single-use plastics. The trust built between Free the Sea and the community creates a mutually beneficial economic relationship, fostering multi-stakeholder engagement and cooperation. This trust is also a result of PT WIK, the company behind Free the Sea, which empowers the community in Batam City.	https://www.freethesea.com/impact https://www.instagram.com/p/CwR95Y7yKKs/?img_index=5 https://www.instagram.com/p/CpkOWrpj5S9/



No	Social Capital Aspect	Findings	Links
2	Social networks refer to a group of individual agents who share norms or informal values beyond those essential for ordinary market transactions (Fukuyama, 2000).	The existing trust encourages Free the Sea to engage in numerous collaborations, involving various parties such as schools, residents, hotels, cafes, and the Batam government.	https://ekonomi.bisnis.com/read/20230311/9/1636273/bp-batam-apresiasi-peresmian-pt-free-the-sea https://www.instagram.com/p/CwR95Y7yKks/?img_index=5 https://www.instagram.com/stories/hi ghlights/18105057100412664/
3	Shared social norms and values among group members create a framework that supports cooperation. These norms can include unwritten rules governing social behavior, such as mutual respect and assistance (Fukuyama, 2000)	Free the Sea uses the circular economy framework as an approach to create sustainable development. This framework has led Free the Sea to practices aimed at reducing all forms of risks posed by plastic waste that can damage the oceans, turning this waste into economically valuable products. Additionally, Free the Sea participates in a series of plastic waste clean-up activities organized by local communities around Batam.	https://ekonomi.bisnis.com/read/20230311/9/1636273/bp-batam-apresiasi-peresmian-pt-free-the-sea https://www.instagram.com/p/DAGCledo9_H/?img_index=1 https://www.instagram.com/p/C780XTixRKT/ https://www.freethesea.com/circularproducts

Source: processed by the researcher

Trust is one of the most important components in creating harmonious relationships with the surrounding environment. Research shows that in terms of trust, Free the Sea has earned the trust of the local Batam community to collect and recycle plastic waste, encouraging the community to cooperate with Free the Sea. High levels of trust and cooperation can lead to better economic outcomes, as people are more willing to engage in collaborative business ventures (Noorfiana & Sulismadi, 2020). Moreover, the element of trust in Free the Sea’s social capital indicates that social capital can manifest in various forms, including investment opportunities and sustainable cooperation (Robison et al., 1999). Furthermore, trust can prevent variability in cooperation and strengthen the commitment built between parties (Shin et al., 2020).

Once trust is established, it creates the social networks of an institution. Fathy (2019) states that social networks can form due to shared values and norms, which then underpin cooperation. These social networks play a crucial role in forming, supporting, and maintaining partnerships by enhancing collaboration, trust, resource sharing, and performance outcomes. Research shows that in terms of social networks, Free the Sea has engaged in continuous interactions with various parties, including schools, cafes, hotels, local businesses, and the government. One example is the collaboration with the Indonesian government. During the Grand Launching of PT Free the Sea, the Coordinating Minister for Maritime Affairs and Investment, Luhut Binsar Panjaitan, stated that the investment made by PT Free the Sea is commendable and should be supported by the Batam community, as PT Free the Sea brings a new mission to protect the environment from plastic waste (Media Digital, 2023).

These findings indicate that social networks play a crucial role in forming, supporting, and maintaining partnerships by enhancing collaboration, trust, resource sharing, and

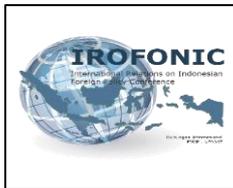
performance outcomes (Lauber et al., 2011). Social networks can also be formed from the practices of norms and values upheld by an institution. Social norms significantly impact economic and political development by encouraging cooperative and trustworthy behavior, helping communities overcome barriers in contracting and collective action (Keefer & Knack, 2003). Furthermore, research shows that the norms and values upheld by Free the Sea, namely protecting the environment from plastic waste, have led to active participation from the broader community. This can support the establishment of an environmentally-based community empowerment system.

Towards a Networked Environmental Movement

To strengthen the existing social capital, Free the Sea also participates in environmental campaign movements. Through their Instagram account, Free the Sea aims to campaign for the initiatives they have undertaken to attract more participants to engage in plastic-free environmental actions. The use of Instagram is an indication that in the current digital era, multimodal social media can be used as a tool to attract a wider range of cross-sectoral participants. In this context, a campaign as a form of social movement is experiencing a new phase, namely the networked phase. Castells (2015) states that networked social movements are social movements that leverage the power of the Internet and digital communication to organize, mobilize, and disseminate their messages. Based on observations and studies of the documentation presented in Table 2, researchers found that the use of digital social media by Free the Sea is not merely a company campaign effort but also for the purpose of expanding networks in a more interconnected manner.

Table 2. Free the Sea networked social movement

No	Overview of the networked movement	Findings	Links
1	Use of Digital Media. These movements use the Internet and social media as platforms for communication and coordination, allowing for the rapid and widespread dissemination of information (Castells, 2015)	Free the Sea uses the digital platform Instagram to share digital content related to environmental actions and initiatives, such as clean-ups, corporate social responsibility programs, educational information about plastic waste and waste banks, and collaboration activities with local communities in Batam. Additionally, Free the Sea uses its website to introduce the company, its activities, and the products they create from recycled plastic waste.	https://www.instagram.com/p/C3xjaVayUNR/ https://www.instagram.com/p/C5xiVSjtB2x/?img_index=1 https://www.instagram.com/p/C6qyugmt1Na/?img_index=1 https://www.instagram.com/p/C733FFdI15N/?img_index=1 https://www.instagram.com/p/C-7aslttJbU/?img_index=1 https://www.instagram.com/p/C-aVBp7N6z0/?img_index=1 https://www.freethesea.com/freethesea



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- 2 **Occupation of Public Space.** Actors often occupy public spaces to create visible physical manifestations of their movements, which helps build community and solidarity (Castells, 2015). - Through their Instagram account, Free the Sea invites the broader community, especially those around Batam, to participate in various volunteer clean-up actions, such as on Earth Day, World Oceans Day, and World Clean-Up Day
- 3 **Global Reach.** These movements can quickly spread across national borders, connecting people from different parts of the world who share similar grievances and goals. To reach a global audience, the digital content created by Free the Sea is in English, the international language. Additionally, in each published content, Free the Sea uses hashtags on Instagram to systematically and massively spread information.
- https://www.instagram.com/p/C5xiV SjtB2x/?img_index=1
- https://www.instagram.com/p/C79Pr8cN5zb/?img_index=1
- <https://www.instagram.com/stories/highlights/18088391935434661>
- <https://www.instagram.com/p/C-9-c2ftV3v/>
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Source: processed by the researcher

In the current digital era, social media is one of the essential tools for movements. The emergence of new media with more convergent functions in conducting movements has created an opportunity for more massive and systematic environmental campaign movements. Research shows that using convergent media, such as Instagram and websites, can easily disseminate information and reach participants both globally and locally. New media technology enhances social movements by providing cost-effective networks, framing interpretations, mobilization, and protest actions, but it does not create new virtual social movements (Loader, 2008).

The presence of social media has changed the structure and dynamics of social movements, so social movements in the digital era are built through the use of digital technology for networking, mobilization, and communication, creating interconnected relationships. This interconnectedness allows Free the Sea to connect with others who share the same vision and mission, namely protecting the marine environment from the dangers of plastic waste. This relationship also creates indirect communication. Although communication between members cannot be conducted directly and intensively, it can significantly influence society.

Free the Sea: Redefining Anthropocene Relations with the Environment

Discussing the Anthropocene era is inseparable from the phenomenon of single-use product consumption, particularly single-use plastic products. The implication is that in the Anthropocene era, plastic waste problems can worsen by increasing plastic pollution, integrating plastic into the geological cycle, and causing ecological risks through the release of toxic chemicals, consumption by marine organisms, and the formation of microplastics (De-la-Torre et al., 2021; Gross, 2017).



Given this, new initiatives are needed to address the dynamics brought about by the Anthropocene from a sustainable development perspective. Human activities such as pollution, deforestation, and fossil fuel combustion are major obstacles to achieving the Sustainable Development Goals (SDGs), especially those impacting public health and marine life (Garai et al., 2023). Therefore, the implementation of the SDGs must consider the interconnections between human and natural systems, emphasizing the role of ecosystems in human well-being (Norström et al., 2014).

A strategic step is needed to tackle plastic problems in the Anthropocene era. One company attempting to develop an economic framework that supports environmental sustainability is Free the Sea, a multinational company based in Batam, Indonesia. PT Free the Sea is engaged in recycling plastic waste into economically valuable products. In collaboration with the community, this German company collects plastic bottle waste from residents' homes and recycles it into coffee makers.

Based on research on Free the Sea's social capital, researchers found that the trust and social networks obtained are the result of norms from a circular economy system that values the reuse of product residues to create new products, thereby reducing the amount of waste that is not used and disposed of in landfills. In the context of plastic waste, the application of a circular economy aims to reduce waste, maintain resources, and regenerate natural systems, differing from traditional linear economies (Payne et al., 2019). Another goal is to minimize plastic waste and environmental contamination by addressing all phases of the value chain from design to end-of-life (Syberg et al., 2021).

The norms regulated in this circular economy system are demonstrated by Free the Sea through an environmentally friendly business model, marine restoration, and support for marginalized communities. In the production process of recycled polymer plastic products, Free the Sea involves various parties. This process begins with empowering the Batam community, many of whom still lack good literacy about plastic waste. In the collection process, Free the Sea also collaborates with local collectors, schools, and non-profit organizations to gather plastic waste. Local collectors are paid above market prices for the materials they bring, as well as for direct pick-up services from businesses and ocean clean-ups. This also applies to the sorting process, where Free the Sea collaborates with local waste banks.

Not only focusing on economic business aspects, Free the Sea also pays attention to social and environmental issues. Research shows that Free the Sea's social capital can be used to empower communities as a step to change unsustainable consumption patterns. Free the Sea believes there is a correlation between poverty and the environmental crisis caused by plastic waste polluting the oceans. This finding is supported by Barbier's (2010) study, which found that poverty and natural resource degradation in developing countries have a complex relationship, influenced by the choices and sacrifices available to poor communities and their access to off-farm employment and natural resources. In turn, social capital plays a significant role in



community empowerment (Fathy, 2019). Usman (2018) argues that empowerment is characterized by activities that increase access to information, participation, strengthening local organizational capacity, and being inclusive (in Fathy, 2019).

Furthermore, to strengthen social capital and expand social networks, Free the Sea also conducts environmental campaigns posted on their website and Instagram account. The more central the actors are in this network, the greater their influence and power (Diani, 1997). Through campaigns on plastic waste processing and recycling, it is hoped to promote a sustainable lifestyle to mitigate the impacts of the Anthropocene. Networked social movements have important implications for social capital as a tool for mobilization and organizational survival (Edwards & McCarthy, 2004) or companies.

CONCLUSION

In the Anthropocene era, human activities can significantly impact the Earth’s condition. Unsustainable consumption patterns have contributed to environmental pollution problems due to non-degradable plastic waste. Free the Sea, leveraging its social capital, attempts to deconstruct ways to protect the environment and industrial aspects through various initiatives, ranging from community empowerment to multi-stakeholder collaborations using a circular economy approach that they believe maintains harmony between humans and the environment. Ultimately, to expand social networks and amplify the implementation of the company’s vision and mission, Free the Sea uses digital campaigns to attract more participants, thereby strengthening elements of trust, cooperation, and commitment from various parties.

To enhance scientific knowledge in the fields of social capital, environmental sociology, and networked social movements, future research is expected to measure or assess social impacts quantitatively to evaluate the effectiveness of social capital in changing unsustainable consumption behaviors in the Anthropocene era. Additionally, due to research limitations, future studies are also expected to incorporate data collection techniques such as interviews to delve deeper into the meaning of existing social capital and how it can be strengthened.

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