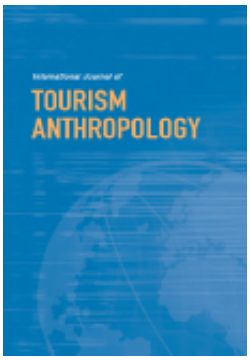
INDERSCIENCE PUBLISHERS
Linking academia, business and industry through research



International Journal of Tourism Anthropology

ISSN online: 1759-0450 - ISSN print: 1759-0442
https://www.inderscience.com/ijta

Developing community-based waste management for public spaces in coastal tourism villages: establishing institutions with local champions

Fikarwin Zuska, Zulkifli Zulkifli

DOI: 10.1504/IJTA.2025.10072512

Article History:

Received:	25 January 2025
Last revised:	07 April 2025
Accepted:	07 June 2025
Published online:	26 August 2026

Developing community-based waste management for public spaces in coastal tourism villages: establishing institutions with local champions

Fikarwin Zuska* and Zulkifli Zulkifli

Department of Social Anthropology,
Faculty of Social and Political Sciences,
Universitas Sumatera Utara,
Medan, Indonesia
Email: fikarwin@usu.ac.id
Email: zulkiflirani47@gmail.com
*Corresponding author

Abstract: Ineffective waste management in rural coastal tourism villages poses environmental, socio-cultural and economic challenges. This study investigates uncleanliness in Kampung Nipah, Indonesia, highlighting its impact on tourism and community well-being. Using ethnographic methods, informed by Giddens' structuration theory and Ostrom's institutional framework, we analysed the socio-cultural dynamics and structural barriers to waste management. Findings reveal that littering is rooted in cultural habits, absence of collective responsibility, and inadequate institutional frameworks. The role of 'local champions' demonstrates the potential for community-driven solutions. This study proposes a new community-based waste management model, which emphasise local resources, local champions, stakeholder (tourism manager) collaboration, and crafting adaptive rules to maintain coastal tourism and environmental health. The integration of participatory frameworks and traditional values offers an innovative approach to fostering sustainable waste management in underserved rural areas.

Keywords: community-based waste management; cleanliness; coastal tourism; local champions; development of common rules.

Reference to this paper should be made as follows: Zuska, F. and Zulkifli, Z. (2026) 'Developing community-based waste management for public spaces in coastal tourism villages: establishing institutions with local champions', *Int. J. Tourism Anthropology*, Vol. 10, No. 5, pp.1–22.

Biographical notes: Fikarwin Zuska is a Senior Lecturer at the Department of Social Anthropology, Faculty of Social and Political Sciences, Universitas Sumatera Utara, Medan, Indonesia. He holds a Doctor in Anthropology. He has conducted several studies focused on power relations, culture and waste management issue. He is actively conducting research in the field of gender, bioculture and ethnomedicine. He is also active as a book editor, reviewer in several nationally accredited journals.

Zulkifli Zulkifli is a Senior Lecturer at the Department of Anthropology, Faculty of Social and Political Sciences, Universitas Sumatera Utara, Medan, Indonesia. He holds a Master in Sociology. He is actively conducting research on fishing economy and maritime environment.

1 Introduction

The concern for environmental cleanliness in coastal tourist destinations has become critical in recent years due to rising pollution levels (Metilelu et al., 2022; Panwanitdumrong and Chen, 2022; Qiang et al., 2020; Tsai et al., 2021). Coastal tourism regions, particularly those abundant in natural beauty, are highly susceptible to the negative effects of unmanaged waste (Lukoseviciute and Panagopoulos, 2021), which impacts environmental quality and the well-being of local communities. The presence of litter, plastic, and other non-biodegradable materials affects the visual appeal of these areas, discouraging tourists and reducing the region's economic potential (Qiang et al., 2020). According to several sources (Ben-Haddad et al., 2024; Dileep, 2016; Jokar et al., 2024; Kozak, 2016; Rama et al., 2022; The ASEAN Secretariat, 2016; UNWTO, 2009; Zhang and Yang, 2016) a clean and well-maintained environment is essential for sustaining tourism (Hikmah et al., 2024).

We conducted this study by considering the issue of coastal environmental pollution and the world's tourism businesses that want environmental cleanliness. We chose Kampung Nipah, a hamlet on the east coast of North Sumatra Province, as a place to study to understand the complexity of environmental pollution problems caused by poorly managed household waste in Indonesia; a country that was once recorded as the second-largest contributor of plastic waste to the ocean in the world (Jambeck et al., 2015); while trying to build a waste management model based on local communities as an alternative solution.

Kampung Nipah, Sei Naga Lawan Village, Serdang Bedagai Regency, North Sumatra Province, Indonesia, is a representative example of waste problems, uncleanliness, and the absence of integrated waste management in tourist destination areas. Positioned along the coastline, this area is characterised by its scenic beaches, mangrove forests, and significant tourism potential (Purwoko et al., 2023). However, the growing influx of tourists,coupled with ineffective waste management practices, has led to lots of rubbish scattered around (Zuska et al., 2024). This region's waste is sourced from residents and tourists, compounded by *sampah-kiriman* (garbage carried by river currents from upstream), accumulating along the coast due to tidal currents. The unique geographical and social context of Kampung Nipah worsens the waste problem, as litter from various sources accumulates in these coastal and residential areas. These various types of waste not only reduce the aesthetic appeal that is important for tourism but also threaten the health of the mangrove ecosystem (Lang, 2020; Luo et al., 2021).

The main problem discussed in this study is the uncleanliness or spread of waste due to the absence of an established waste management institution that serves the entire Sei Naga Lawan Village, where Kampung Nipah is located. The absence of institutions that cause scattered, unhandled, and unclean waste can interfere with the sustainability of tourism activities, as is now experienced by the Klang Beach Tourism Park (one of the local tourist attractions) (Sugiono, 2024). In fact, at the same time, waste transportation services from the Serdang Bedagai Regency Government did not reach this village. Therefore, to save tourism activities that have brought welfare benefits to residents, even though they have not been maximised, creating a model of waste management institutions based on local community resources is necessary. This research aims to analyse the local socio-cultural factors related to the obstacles and potential to the emergence of community-based waste management institutions anthropologically.

Several studies in environmental management underscore the importance of establishing waste management institutions (Czekała et al., 2023; Herdiansyah et al., 2021; Muliawaty et al., 2022; Pardini et al., 2020; Pasang et al., 2007; Sakai et al., 2011; Zorpas, 2020) including promoting sustainable waste handling in tourism destinations (Qiang et al., 2020; Susilawati et al., 2022). Rural tourism regions often lack the structural and financial resources necessary to develop and maintain such systems (Asteria and Herdiansyah, 2022; Herdiansyah et al., 2021). Institutional theory suggests that community-based management is crucial in fostering environmental stewardship by encouraging self-governance and collective action (Ostrom, 2005). Ostrom's work on institutional diversity highlights the potential for locally governed waste management structures to support sustainability, particularly in areas where formal municipal systems are limited or non-existent. Structuration theory, developed by Giddens (1985, 1986), also aligns with this approach by emphasising the interaction between agencies and structures in shaping human behaviour (Blunden, 2021; Lamsal, 2012). The formation of human behaviour requires Foucault's ideas of power and surveillance (Danaher et al., 2000; Havis, 2014; Mendieta, 2014; Patton, 1987; Revel, 2014).

Community-based waste management has been widely studied as a sustainable solution to environmental issues. Several studies highlight the importance of participatory approaches in ensuring effective waste management (Mulasari et al., 2024; Musiana et al., 2024; Sinthumule and Mkumbuzi, 2019). Ethnographic research has also been recognised as a valuable method for understanding community behaviours and institutional roles in waste management (Allison, 2014; Cappellaro, 2017; Díaz, 2023; Fruitema, 2015; Ito, 2019; Naylor et al., 2021). The integration of local knowledge with formal waste management policies has proven successful in previous studies, emphasising the role of community engagement in achieving long-term environmental sustainability (He et al., 2024; Ismail et al., 2024; Musiana et al., 2024; Pujar and Mishra, 2024). This study builds on these insights by examining a locally adapted waste management model.

This theoretical framework emphasises that waste management is a cooperation of individuals that can be constructed. It occurs because of the dialectic between the individual as an agent and the constantly moving structures. The problem is that the waste management institution in Kampung Nipah has not been formed, even though it is necessary for the cleanliness needed for the tourism of the area's beach. The study then analysed the uncleanliness due to the absence of waste management institutions and connected it with the local community's culture, tourism management, individual conflicts, and local champions. Based on this analysis, a waste management model based on local resources is proposed.

Despite the theoretical support for institutionalised waste management, there is a stark gap in the practical application of these ideas in rural coastal areas such as Kampung Nipah. Most of the existing literature on waste management is in the context of urban or more advanced areas where urban systems and resources already exist (Elmosaad et al., 2023; Gelter et al., 2021; Shen et al., 2020a, 2020b; Taye et al., 2024; Nasab and Parseh, 2024). Coastal rural communities often face significant challenges in managing waste effectively due to their limited resources and infrastructure. Previous studies have highlighted various waste management practices in urban and developed coastal regions. However, there is a noticeable gap in research specifically addressing how resource-

limited coastal rural communities develop and implement effective waste management strategies.

Community-based waste management in coastal tourism villages presents unique challenges and opportunities. Studies have shown that integrating sustainability concepts and empowering local communities through institutions like BUMdes can lead to successful waste reduction initiatives, such as replacing plastic containers with leaf alternatives and implementing early waste segregation (Damayanti et al., 2022). Engaging university students, researchers, and community groups in waste education initiatives has proven effective in raising awareness and building local capacity (Singer et al., 2019). The development of ecotourism through innovative waste management systems can positively impact social, economic, and environmental aspects of village life (Apriliyanti and Rondelli, 2020). However, challenges persist, including funding limitations, changing ingrained household waste practices, and the need to incorporate local wisdom into waste management strategies (Singer et al., 2019; Williams, 2014). Education and community involvement are crucial for successful implementation of sustainable waste management practices in coastal tourism villages (Damayanti et al., 2022; Williams, 2014) This study aims to bridge this research gap by analysing the challenges and opportunities faced by coastal rural communities in implementing sustainable waste management practices. By doing so, this research provides a comprehensive understanding of how localised strategies can contribute to broader environmental sustainability efforts in coastal regions. This study creates a waste management model in Kampung Nipah that utilises local resources and is tailored to the community's specific needs. This model, of course, still needs to be tested through further research.

2 Methods

2.1 Research design

This study employs a collaborative ethnographic approach (Lassiter, 2005; Winarto, 2019, 2011) to understand phenomena within the social and cultural contexts of a specific community. This method enables an in-depth exploration of participants' perspectives (emic view) through immersion and live-in fieldwork by the ethnographer (Eller, 2009; Fetterman, 2010, 2024). As the primary research instrument (Fetterman, 2010, 2024), the ethnographer integrates theoretical perspectives from Anthony Giddens' structuration theory (Blunden, 2021; Giddens, 1985, 1986; Giddens and Sutton, 2021; Lamsal, 2012), Elinor Ostrom's institutional analysis (Ostrom, 2005, 2015, 1992), and Michel Foucault's theories on power and surveillance (Havis, 2014; Mendieta, 2014; Revel, 2014) to illuminate and analyse the socio-cultural dynamics present in this research context.

2.2 Research procedures

2.2.1 Building rapport

Rapport was established from the outset and maintained throughout the study to foster trust between the researcher and community members, ensuring openness from both parties (Fetterman, 2010, 2024). The research was conducted over three phases of

fieldwork in 2017, 2022, and 2023, confirming the complete absence of waste management in public spaces. The researcher obtained official university documents for notification purposes and secured verbal authorisation from local authorities before commencing the study.

2.2.2 Observation, interviews, focus group discussions, informal group discussions, and documentation

The researcher employed all sensory faculties during fieldwork for thorough observation. Particular attention was given to scattered waste in various locations and individual behaviours related to waste management. Observations were recorded both in real-time and retrospectively during available moments. Photographs and video recordings were also collected as documentation and elicitation tools (Barton, 2015; Kahlke et al., 2024).

Interviews were conducted with general informants and key informants. General informants included any individuals capable of providing insights into public waste issues, which was relatively easy as all community members were directly or indirectly involved in waste disposal. Identifying key informants required more time in the field and multiple interview rounds to recognise individuals with extensive knowledge, concern, and interest in the issue (Fetterman, 2010, 2024). Key informants were primarily tourism park managers, including owners, leaders, and staff, with at least one also serving on the village representative body (BPD).

For key informants, in-depth and elicitation interviews were conducted multiple times at different intervals to refine the information and facilitate triangulation. Triangulation was essential as data collection was conducted concurrently with ongoing analysis, necessitating confirmation or falsification of emerging inferences. All interviews were documented in real-time and later transcribed verbatim with elaborations.

FGDs were conducted to obtain collective responses to elicitation questions such as: *what is your reaction to this photo?*, *why is this waste scattered here?* and *who is responsible for this waste problem?* The discussions involved 15 participants from diverse backgrounds, including tourism operators, fishing groups, village government representatives, and residents of Kampung Nipah. The conclusions drawn from the FGDs were consensus-based, facilitated by the researcher.

Additional data were gathered through informal group discussions, which were highly inclusive and had no participant restrictions. These discussions provided a platform for refining analytical insights with broader social acceptance, in line with the principles of collaborative and complexity ethnography (Winarto, 2019, 2011).

2.2.3 Data analysis

Data analysis was conducted simultaneously with data collection, evolving dynamically in the field. The essence of the analysis was to identify causal relationships among elements, guided by the theoretical perspectives mentioned earlier. This process was not solely undertaken by the researcher but also collectively discussed in informal group discussions and FGDs, ensuring broader analytical validation and social acceptance.

This study engages local stakeholders in the analysis and conclusion to develop a community-based waste management model. This approach aligns with the broader goals of sustainable tourism development, aiming to balance economic growth with

environmental protection (Caponi, 2022; Mbah and Franz, 2021; Metilelu et al., 2022; Rama et al., 2022).

3 Results and discussion

3.1 Uncleanliness

Uncleanliness arises because garbage is scattered in the wrong places. A lot of garbage is lying on the streets and roadsides, in yards, banks and rivers, banks and ditches, stuck in mangrove trees and roots, and various other places. Throughout the observation, the garbage was lying in the same place without anyone moving it. People do not care and leave it alone except because it is blown by the wind, swept away by water (rain or tide), destroyed by vehicle tyres, and ruffled by animals.

In several locations, piles of garbage are apparent, with over a dozen found in Kampung Nipah alone. There are also numerous other heaps made up of burnt waste. Although the sizes of these garbage piles vary, they collectively represent what we describe as 'scattered garbage'. This indiscriminate garbage greatly damages the cleanliness and neatness of the Kampung Nipah area, ultimately reducing its overall beauty. In fact, in terms of tourism, cleanliness, neatness, and beauty are very important (Dileep, 2016; Karcher, 2023; Khair et al., 2022).

3.1.1 Source of waste generation

There are at least five sources of waste in Kampung Nipah, Sei Naga Lawan Village

1 households

2 *warung* and *kedai*

3 agriculture

4 tourist visitor waste

5 sampah kiriman.

Household waste comprises kitchen, bathroom, and living room waste (bedroom and family room). Kitchen waste includes organic waste from weeding vegetables and fish (side dishes), eggshells, coconut pulp, coconut shells/coir, and others. In addition, there is inorganic waste in the form of wrappers of instant food and/or snack foods, instant noodles, cooking oil wrappers, flavouring wrappers, soy sauce bottles, sauces, various packaged beverage containers, cans, as well as wrappers or packaging of children's snack food such as candy, chocolate, junk-food, and others. Included in this group is waste from cigarettes, such as cigarette boxes/packs and filters or cigarette butts.

Households of residents of Kampung Nipah also produce waste in the form of solids from the bathroom, namely: bathroom waste. Bathroom waste includes containers or wrappers in the bathroom, for example, shampoo containers/packaging (bottles and or sachets), bath soap (wraps and or bottles), face soap, laundry soap, and dishes (bottles and or glasses), toothpaste boxes and tubes, used toothbrushes, and so on. The consumption of items like this is not disposable. Besides that, more garbage stems from the bedroom and family room. The waste that we call 'living room waste' comprises

cosmetics, combs, used clothes/fabrics, sanitary napkins/tampons, as well as medicines, including mosquito repellents for health such as mosquito repellents and electric mosquito repellent and spray mosquito repellent. Waste from the living room (living room or family) often appears in the form of paper/torn books, newspapers, and so on. Used sandals and shoes also fall into this category.

Household waste in Kampung Nipah, like villages in many parts of the world, is coloured by industrial waste (Mihai et al., 2022). Industrialisation and market expansion, as well as transportation improvements, which are part of modernisation and development in Indonesia, have brought massive industrial goods to villages, followed by garbage (Kurniawan et al., 2022, 2023). Meanwhile, villages and their citizens consume industrial goods without cultural preparation to be able to overcome and manage their inorganic waste. Technically, organic waste management – usually carried out by villagers by burying it – is different from managing inorganic waste. Both types of garbage are treated similarly: buried or burned without being sorted. As a result, waste is still scattered in existing spaces because the waste-handling process is not effective and optimal.

Households of Kampung Nipah residents who generally have jobs as fishermen or farmers and combine fishermen and farmers also often use their houses as a 'place' to store various agricultural and fishery production tools. Therefore, if there is damage to fishing gear so that it can no longer be used, it will become household waste. For example, damaged fishing nets, buoys, various ropes, and plastics related to fishing gear. According to Aminah, a housewife in a focus group discussion (FGD), the amount of household waste per day in Sei Naga Lawan Village is as much as 1 plastic bag, weighing about 3/4–1 litre coupled with the waste sourced from the 'bathroom' and 'living room,' which is not daily waste, households' average amount of waste per day is around 1–1.5 litres per day.

The second source of waste originates from *warungs* and *kedais*. Warungs are stalls outside tourist attractions that primarily sell food, snacks, and beverages. Their offerings include items such as soup noodles, *pecal*, fried bananas, tempeh, tofu, instant noodles (both fried and in gravy), *lontong*, *nasi gurih*, and more. In contrast, *kedais* are shops that provide essential daily necessities. In Kampung Nipah, there are approximately 10 to 12 stalls and shops. These establishments generate considerable waste, estimated to exceed what an average household produces. Stalls are believed to produce around 1.5 litres of waste daily, while grocery shops contribute approximately 2 litres daily.

The third source of waste is agriculture, specifically from rice fields. In Sei Naga Lawan Village, the area dedicated to rice cultivation covers 497 hectares. Locally, the unit of measurement for rice field area is called 'rante', where one *rante* measures 20 metres by 20 metres, totalling 400 square metres. The average rice yield is approximately 2.5 sacks per *rante*, equating to about 200 kilograms. Therefore, if a farmer manages 8 *rantes*, the total yield would be 2.5 sacks multiplied by 8 *rantes*, which equals 1,600 kilograms. The primary waste generated from rice farming consists of straw and husks, which are produced after harvesting, particularly when using a harvesting machine. Each harvest produces about 0.5 to 1 cubic metre of organic waste per rante. Rice fields are typically harvested twice a year. In Kampung Nipah, there is generally no planting of other crops between the two harvests, as rice farmers in Kampung Nipah also engage in fishing. However, in other parts of the village, many farmers plant secondary crops, known as *palawija*, in their fields when they are not cultivating rice, as they do not

participate in fishing activities. These farmers tend to focus more on rice farming than on fishing.

Figure 1 Scattered garbage in Kampung Nipah (see online version for colours)

Source: Photo by authors

The fourth waste sourced from visitors to beach tourist parks generally appears in the park area. The type of waste that appears is the same as household waste in the form of food and beverage waste and used packaging. Many visitors to the parks in Kampung Nipah bring their own food from outside, although the park also sells similar food and drinks. Visitors who come in groups, usually on Saturdays and Sundays or on holidays, only rent huts or platforms that are available to sit and eat and bathe by the shallow sea. The rest is to take pictures at the spots provided by the park. The length of time spent in the park varies from 3–5 hours, with waste per person of approximately 0.29 kilograms (assuming waste generation per person per day in Indonesia is 0.7 kilograms) (Anugrah, 2022).

The final waste category is 'sampah kiriman', meaning 'incoming garbage'. This waste originates from areas along the Nipah River, where individuals frequently dispose of their trash in the water. The river's current then transports this debris downstream to the river's mouth, ultimately leading it into the sea, specifically the Strait of Malacca. During high tide, the garbage rises to the surface, becoming trapped in the sand and soil as the water recedes. The waste types contributing to this issue are varied, including plastic, fabric, leather, wood, rubber, and sanitary products such as tampons and napkins.

The practice of residents living along the riverbank of discarding garbage into the river has led to this incident. Almost all rivers that flow through settlements in North Sumatra have piles of garbage on one or both sides, as observed by researchers. Many individuals view rivers as places to dispose of waste and items they deem dirty (Iskandar et al., 2022; Sakti et al., 2023; Zuska, 2008). It not only pollutes the river, but it also contaminates the sea (Afianti et al., 2022; Jambeck et al., 2015; Kandziora et al., 2019). Plastic bags were scattered everywhere, caught in various tree branches along the riverbanks. Scenes like this are very common after the river floods. The mangrove trunks along the Nipah River in Sei Naga Lawan Village are covered with various types and colours of plastic bags, significantly detracting from the beauty of this beach tourist attraction.

3.1.2 Waste handling practices

Waste handling in Kampung Nipah usually involves four series of methods: collecting, disposing, burning, or burying waste. The garbage is collected in containers known as

garbage cans. Trash cans are designed to accommodate garbage in various forms. For example, if it is similar to a basket, it is called a 'garbage basket', while a barrel-shaped container is called a 'garbage can'. Trash cans can be found both inside and outside the home. This waste-handling activity is carried out in each unit, both households and beach tourism parks. Meanwhile, waste in public places (outside the houses, stalls, and shops, as well as tourist parks) there are no activities to handle waste specifically institutionalised.

Inside the house, garbage is handled in an orderly manner. The occupants of the house, usually women, sweep and collect the garbage in their house into a container (still in the house) before throwing it away or removing it from the house. In-house (indoor) garbage containers are usually in the kitchen and easily moved as needed. Furthermore, the garbage is removed from the house after a few days. The garbage dump is a piece of empty land dug up, a niche, a riverbank, or a ditch on the house's side, back, or front.

Garbage piles, which eventually become large heaps, are typically treated in one of two ways. The first method is burning, while the second allows it to remain. Burning can occur at any time without a specific schedule. It is usually carried out by individuals who believe the garbage is within their authority to destroy it. Fires may be ignited in the morning or evening, with the smoke rising into the sky as the flames consume the combustible materials. After the burning, the residue is always left behind; it turns black and charred, resembling charcoal. This residue is often left until it diminishes over time, primarily due to erosion from rain. This pattern continues to repeat until time moves to another place. Inadequate waste handling is not only unhealthy but also has the potential to reduce the interest of tourists visiting this place again.

Leaving garbage untreated, without burning or burying it, is another method of waste disposal observed in Kampung Nipah. The accumulated garbage appears to be 'handed over' to the universe. These piles are typically found in locations such as river basins and bare land with bushes. In terms of location, these garbage heaps are considered in 'public areas' since they are situated outside residential homes and tourist parks. As a result, no one is responsible for handling it. Additionally, these two garbage sites are located in areas that are deemed 'hidden' or 'back areas', which are not easily visible to the public. However, they are still observable, even if they seem somewhat secluded.

On the other hand, tourist park managers employ a cleaning team for waste handling in tourist areas in Kampung Nipah, such as Cemara Kembar Beach, ATP Beach, and Mangrove Tourism Park. This team is responsible for the daily collection and disposal of garbage. These teams are tasked with maintaining the clean appearance of each park to enhance the tourist experience, especially by sweeping, collecting, burying, and burning garbage. They focus on 'surface cleaning' because it serves as a temporary solution to deal with visible garbage. Handling waste in these tourist parks shows results in the form of garden cleanliness that is pleasing to the eye. The garden courtyard looks clean, much different from the state outside the park, where garbage seems scattered. It is also not impossible that the scattering of garbage outside the park comes from 'garbage dumps' or 'waste burning' belonging to the parks. Regarding technology and how to treat waste, it is the same in both parks and households: sweep, gather, throw away, burn, or bury. Outside the park and household areas, we call it public areas, there is no waste handling. No party can be said to be responsible for taking care of waste in this public space. That is why it is unsurprising that public spaces have a lot of waste. Borrowing Ostrom's (2005) thought, this is what is called 'the commons'.

3.2 Absence of waste management in public areas

3.2.1 No reason to handle public waste

If garbage scattered in public places is handled specifically, the village's appearance will certainly be better (clean) regarding tourism. However, until now, no party has intended to handle it. This can cause problems, especially since this village is a tourist destination, a place where people come from many places in search of tranquillity, comfort, and beauty. However, the study found that locals do not consider garbage to be their problem. They do not connect waste (cleanliness) with tourism destinations at all. For them, scattered garbage has been common for a long time before tourists travel to their villages.

"Waste has always been like this", said Mr. Isya (informant 50 years old) in response to a question about the condition of waste in Kampung Nipah. "If it has been stacked, it will be burned. If there is still vacant land, make a hole and insert it. If it is full, cover it with soil", he explained. So between 'scattered garbage' and the growth of tourism in the village, according to this informant's view, there is no connection. It is evident that tourist visitors to this village continue to grow. In other words, the existence of scattered garbage in public spaces does not affect the development of tourism.

This view automatically does not encourage residents to manage waste in public areas. Tourism activities are considered not affected by the scattering of garbage in public spaces. On the other hand, tourism also does not encourage residents to want to take care of public space waste so that it looks cleaner and neater. After all, residents have inherited the culture of living in settlements with such scattered garbage. Garbage in residential areas (public spaces) does not interfere with their lives, fishermen's livelihoods, and their farms. Therefore, there is no reason to think about taking care of and managing public waste as well as possible.

3.2.2 Tourism management

The above view is different from the view of the managers of beach tourism parks. They (Tris, Saiful, Jalal, Adi and Syahrul) are very aware of the importance of maintaining the cleanliness of tourist areas. It can be seen from its policy of providing a special team for cleanliness in their respective tourist parks. But for the cleanliness of public spaces, spaces outside their parks, they are not able to cope with it. Moreover, among the five of them, cohesiveness and togetherness in working to realise their ideals have not been built. They still tend to conflict with each other and drag their ethnic identities. The result is that they cannot exercise their power to influence citizens to participate in realising the cleanliness of public spaces by forming an integrated waste management institution.

Anthropologically, human views of objects, including garbage, are actually subjective (Drackner, 2005; Zuska, 2008). For ordinary villagers who are not the managers of tourist parks, littering in the public space of Kampung Nipah is a common thing which has happened for a long time and does not interfere with their 'interests'. They – as fishermen or farmers – do not see that the scattered garbage, even though it contains plastic elements, has the potential to pollute the water, soil, air, and sea environment. Potential, as revealed in the results of Drackner's (2005) research, is not the same as a problem. The potential has not yet occurred and is abstract while the problem is happening and must be overcome (concrete). Meanwhile, for tourist park managers, garbage in public spaces is a problem. However, this problem has not been overcome by them because they are not able to establish cooperation between fellow tourist park managers.

The conflict between the two major powers among the leaders of the tourist parks in Kampung Nipah has made both sides focus more on the power struggle than on collective goals such as cleanliness in public spaces. This crisis, according to one of the managers (who did not want to be named), has started for a dozen years.

"In the 2004–2009 period, there began to be friction. Previously, he was engrossed in Klang Beach. Over time it changed. He tried to influence the village government, even the district so that they would not recognise our control over the management area. He also used the power of youth mass organisations to press. But we, with the support of many friends, did not succeed in silencing us", he said. "But now, it has subsided, we have met, it is just that cooperation is still difficult", he added.

Almost everyone in Kampung Nipah knows about the conflict between these two 'champions'. Tribal issues and issues of authenticity are also colouring. There is a kind of division in society between those who enter the camp 'there' and the camp 'here'. The competition between them continues to this day. There was even a difference of understanding when recently there was road paving by the local government. There is a widespread issue of road paving that is deliberately directed to the road to 'her' garden and not to 'our' garden. The ongoing tension – something anticipated by Ostrom (2005, 2015) – among these managers further emphasises the weakness of managers to be able to build waste management institutions for public spaces. The conflict prevented the two from pooling their resources and working together to create more effective and integrated solutions. Without cooperation, the costs and efforts required for waste management in public spaces will be higher and more inefficient.

3.2.3 Socio-cultural barrier

The concern of the residents of Kampung Nipah for garbage and cleanliness, as seen above, is very limited because there is no cultural heritage of cleaning public waste. They do not inherit the culture of cleaning up public space garbage because the waste produced in past socio-economic activities is in the mode of agricultural production/subsistence fishermen. Their production and consumption waste is not large in number, not yet of various types, and very low in inorganic elements. Consumption of plastic packaging for industrial products has not occurred much. The organic waste produced through their activities can eventually be lost, absorbed or dissolved into the soil. But now a household waste in the village has changed, along with changes in diet and consumerism towards industrial mass products that enter the village, but it is not followed by the adaptation of the behaviour of managing its waste that is mixed between organic and inorganic. The uncleanliness discussed above is also a consequence of this failure to adapt.

The tradition of 'gotong-royong' among residents (if it ever existed) has faded; if not, it can be said to be lost. Residents do more work for private interests (personal or group) than for the public interest. The principle of *gotong-royong*, namely cooperation from us, by us, and for us (Marzali, 2005) in the context of the citizenship of the people in Kampung Nipah, is very thin. The Bugis, Javanese, Malay and Batak Toba people who live in these villages hardly keep in their collective memory (values and norms) cooperation with the principle of *gotong-royong* to meet the needs/interests of the public with physical and mental involvement (participatory). One of the reasons is none other than the work of state policies which have implications for the emergence of assumptions and attitudes that are contrary to mutual cooperation, namely: "all public affairs have been taken over by the government/state", and this has been going on for decades, for

example the policy on waste. Waste since the Dutch Colonial Era has been handled normatively and formally by the government (Affandi et al., 2022). Law Number 18 of 2008 concerning waste management also reaffirms this policy and puts the government in a position where it is obliged to manage waste while residents only help.

Cooperation among residents who are still alive today is in the form of various *tolong-menolong* activities with the principle of reciprocity (Marzali, 2005). The principle of reciprocity in this paper is the principle of reciprocal exchange of goods or services between each other (Hunt, 1997), where the parties can sue the other party who violates it (Marzali, 2005). While quoting Malinowski's words, Yunxiang Yan said: "all rights and obligations are 'arranged into well-balanced chains of reciprocal services" [Yan, (2005), p.250]. In Kampung Nipah itself, one form of *tolong-menolong* is called *Asokan*, which is an activity to help ease someone's burden when building a house, and circumcision and marriage ceremonies. The method is that the helpers give goods or building materials such as cement, zinc, iron concrete, and others. On the other hand, when the helper builds a house, goods or similar materials that have been received by the recipient must be returned to the giver in the same quantity and quality or more. The same thing also applies to help activities to ease the burden of individuals who hold wedding parties and circumcision.

If it is not cooperating with the principle of reciprocity, any cooperation will be difficult to run. Cooperation among residents whose patterns are relatively modern such as sharing funds (money) for one common interest, such as cooperation in collecting money to hold Indonesian Independence Day celebrations and collecting funds and energy for traditional ceremonies related to the sea, "it always runs slowly, stuck and lacks interest", explained informant Ahmad Yani. This is an indication that mutual cooperation or participation has really withered in people's lives.

The factor for not building a waste management system in public spaces in Kampung Nipah is due to the 'lack of incentives'. The economic value of local waste processing results is not enough as an incentive for a person. Waste elements that can be sold or recycled (plastic, paper, metal, and glass) among the lower-middle class are a few (Zuska et al., 2022, 2023). Most of the types of inorganic waste produced are from the types that do not sell well in the market. Therefore, in a situation where most people are more oriented to making money, processing public waste in Kampung Nipah is not the best option economically. Unless the work is project work or accompanied by a salary/wage, as has been done at existing tourist attractions, where cleaners (part of the local population) are paid by the tourist attraction manager.

4 Building public waste management institutions

By studying the socio-cultural context of the residents of Kampung Nipah, tourism activities, and also its accessibility to the outside world in the digital era, a local community-based public waste management institution must be built considering that waste transportation services from Serdang Bedagai Regency have not yet reached that area. This idea was inspired by the experience of a champion or agent who had a dialectic with the existing structure when building a mangrove forest, which later became the basis of the community of the Kampung Nipah Mangrove Tourism Park. It was Sutrisno, a local villager, who at a young age 'studied' in several NGOs until he succeeded in becoming the Secretary General of the North Sumatra Fishermen's Union, in Medan.

"WPAP educated me to become an activist in 1992", said Tris, the nickname of the founder of the tourist park, which is now very famous on the east coast of North Sumatra.

WPAP is the name of an NGO, an acronym for Rural Alternative Development Forum. They entered Nipah Village to invite residents to run the Mina Bakau program. "In 1997, I left this village, instructed by the task of organizing fishermen for demonstrations in Langkat. It lasted for three months", said the 17-year-old Tsanawiyah graduate. In 1992–1994 he was cadre, brought everywhere to get to know social movements. "I don't know how many demonstrations to the DPRD. That's my school, sir", he explained. "I got to know various NGO activists, taught Marxism and so on". "The first time I stayed at the hotel, it was at Pelangi Padang Bulan Medan, there was an event with WIM", he explained. Wahana Informasi Masyarkat (WIM) is a community information forum, a collection of NGOs in North Sumatra. Until he met his wife, Jumiati, in 1998 at the North Sumatra Fishermen's Union (Indonesia: SNSU), who was an intern there at that time. In 2001 he left SNSU and in 2002 returned to Kampung Nipah, Sei Naga Lawan village built a household. "Three years of destitute life", he said.

Since 2002, Tris and his wife have started planting mangroves. "Until 2005, there were still only two wives. No one wants to participate". Until one day, a senior activist came, reminding him with quite loud words: "who wants to come with you? You are poor!", said Tris, imitating. Only in 2006 came seed assistance from activist friends, namely after the Aceh Tsunami incident in December 2004. At this time, there are already people who are participating in planting. Finally, they were able to establish mangrove planting groups. For women, his name is Muara Tanjung, while for men, his name is Kayuh Baimbai. Finally, the two groups were merged into Muara Baimbai, which then established a cooperative called Muara Baimbai, which oversees the business of the Kampung Nipah Mangrove Tourism Park.

From this story, it can be seen that the people of Kampung Nipah can change their behaviour if there is a champion who is strong and persistent with his goals. In the group formed earlier, there must be work rules that are made together, carried out together, and supervised together without exception. If this is not the case, it will be difficult for the group to develop until now to be able to run a cooperative. Work rules refer to formal rules that are established to regulate the behaviour of individuals in a group or community. These rules are typically written and agreed upon by group members, and serve as guidelines for decision making and interaction. On the other hand, the rules used are those that are actually applied and followed by group members in their daily practice. These include informal ways and habits that may not be written about but still influence individual behaviour. Ostrom (1992) said: "an institution is simply the set of rules used (the *working rules* or *rules-in-use*) by a set of individuals to organise repetitive activities that produce outcomes affecting those individuals and potentially affecting others".

From this story, it can be learned that the people of Kampung Nipah can change their behaviour if there is a champion who is strong and persistent with their goals. In the groups formed earlier, there must be working rules that are made together, run together, and supervised together without exception. If this is not the case, it will be difficult for the group to develop until now it can run a cooperative. Working rules refer to formal rules that are set to regulate the behaviour of individuals in a group or community. These rules are usually written and agreed upon by group members, and serve as guidelines for decision making and interaction. On the other hand, rule-in-use is a rule that is actually

applied and followed by group members in daily practice. It includes informal ways and habits that may not be written but still influence individual behaviour.

4.1 Finding local champions

The involvement of people from outside the residents of Kampung Nipah to internalise the importance of managing public area waste for the sake of the future preservation of the coastal environment, its cleanliness and beauty, as well as the health and welfare of its current residents, is very necessary. The presence of WPAP in Sutrisno's story in 1992 – which awakened a *local champion* who later succeeded in pioneering mangrove reforestation (phase 2002–2005), cultivating community self-help to plant mangroves after the Tsunami (phase 2006 and above) and then managing them independently under a cooperative legal entity – it shows the importance of 'outsiders' to awaken awareness and fighting spirit which of course goes through the process of socialisation and internalisation. Similar things must be done – though not necessarily the same – for the purpose of managing public waste in the Kampung Nipah community which socio-culturally (structurally) does not encourage local individuals to do so. This role can be played by agents of change, cultural brokers from outside the community, such as participatory action research researchers, NGOs and university volunteers.

This socialisation and internalisation process is also carried out by the process of searching for and arresting local champions; namely individuals who have a track record in pioneering and starting a business that then gives birth to social change (many people follow him/her in the community). This establishment breaker (a dialectical individual with a structure: agency) needs his involvement in pioneering waste management efforts in the public sphere. Cultural brokers need to study the social networks that exist in the midst of the local community to find individuals who are the 'nodes' of existing social relationships. The managers of tourist parks spread across Kampung Nipah – although powerless to initiate waste management in public areas because they are in conflict – are local champions who need to be embraced. They each had a certain number of followers. The rest can still be found from outside the manager's circle, for example, although not always, individuals whose houses or stalls are often places for residents to gather.

4.2 Development of common rules

These *local champions* are expected to be organised and organise themselves to manage waste in the public space of Kampung Nipah. Cultural brokers connect them to each other in 'new' relationships and affairs with rules woven from within themselves and their communities in an inductive, participatory manner, as are the so-called 'working rules' in the organisation. This organisation is not a kinship organisation, but a public organisation oriented to the common good: the preservation of the nature of the future coastal environment, its cleanliness and beauty, and the health and welfare of its population. The principle is mutual cooperation: from us, by us and for us. The principle of mutual cooperation, although it has been depleted in society, is not something that cannot be carried out if the working rules and rule-in-use (institution) have been established.

The champions together will continue to involve all stakeholders to formulate waste management rules. Tourist park managers, ordinary citizens, village representative bodies, and village governments must be involved in this process. The principle of the

waste management rules that will be made is that the norms in the rules must be clear, fair, and relevant to local needs. This rule also covers leadership in the organisation that is jointly determined by members, with criteria as far as possible leading to the capacity and ability of each individual. This criterion must be included in the working rules that are knitted together and actually implemented later as rules-in-use. The organisational structure is also developed gradually according to the context and needs and must be recorded in the working rules.

4.3 Monitoring and enforcement of rules

The rules that have been made must continue to be monitored transparently and fairly, with consistent enforcement of rules through social supervision and formal supervision. This mechanism for monitoring must be created for the first time by group leaders who are already committed to managing public waste properly. Without supervision and enforcement of the rules, it will be impossible to change the culture of residents or residents who have been managing waste for a long time and have never been in their lives. Sweeping the house is not managing garbage but it is only cleaning the house. Managing waste is to make special efforts against waste, whether with the 3 R system (reduce, reuse and recycle) or other patterns, so that waste does not pollute the environment and also does not cause disease. Thus the environment will change to be clean, neat and conducive to environmentally friendly tourism activities.

4.4 Flexibility and periodic evaluation

Social and environmental dynamics will often affect institutions (working rules and rule-in-use), so evaluation and updating of norms in rules must be a concern. Waste management in public spaces will experience obstacles and if the evaluation of existing rules is not carried out immediately, the existence of this public waste management institution will be questioned by people. The periodic evaluation also marks that this institution is alive and running. In addition, rules with norms that are too rigid may fail because it is difficult to adapt to existing social realities. Therefore, flexibility in the formation of regulation also needs attention.

4.5 Conflict resolution mechanism

The initiative is to provide space for conflict resolution between stakeholders both between tourism managers and with other parties in a way that does not damage cooperation in waste management. Cultural brokers from outside the population are indispensable to facilitate this matter. The egalitarianism that prevails in the Kampung Nipah community requires the existence of ‘outsiders’ as intermediaries to prevent tensions from escalating.

4.6 Incentive

This is a big problem that must be addressed immediately. Ordinary residents do not feel incentivised by waste management activities. If waste is managed in an organised, transparent manner, incentives can be created for them even in small amounts of material,

or even in other forms that may still be difficult for most people to feel. For example, such as appreciation as the cleanest village, caring about cleanliness and the environment, so that it receives assistance from the government or receives visits from tourists so that it is open to them (most people) business doors whose type may be beyond previous expectations.

4.6.1 Community-based waste management model in coastal tourism villages

Effective community-based waste management in public spaces is a crucial component of sustainable coastal tourism village development, particularly in communities with limited resources, low environmental awareness, and weak collective responsibility. This model integrates the active participation of local champions (LCs), who may compete or face conflicts, to establish new regulations or refine existing rules-in-use that are fair and relevant. These efforts are conducted in collaboration with the village representative body and the village government while simultaneously engaging external partners to provide education on environmental conservation, sanitation, economic benefits, and public health. Additionally, the model organises and empowers individuals to manage waste handling, sorting, and utilisation, ensuring public well-being and environmental health under community-supervised, phased evaluations.

This model positions LCs as key agents in fostering an inclusive, adaptive, and locally driven waste management system. By combining community-based regulations, continuous education, incentive mechanisms, and strict monitoring, it offers an effective solution for maintaining clean, healthy, and sustainable coastal tourism villages. Addressing core challenges such as low hygiene awareness, weak communal cooperation, and resource limitations, the model incorporates community-driven working rules to enforce compliance with zero-waste policies, emphasising source separation and household-based waste processing methods such as composting, biogas production, and recycling. Its sustainability is reinforced through participatory monitoring and evaluation, inter-regional environmental competitions to boost engagement, and circular economy initiatives, including the development of village waste banks that provide financial incentives for proper waste management. By integrating regulatory frameworks, education, and economic incentives, this model presents an innovative and sustainable approach to fostering environmentally responsible tourism villages.

5 Conclusions

This study explores the challenges of waste management in rural coastal tourism areas, focusing on Kampung Nipah, Indonesia. Findings reveal that uncleanliness in public spaces is deeply rooted in socio-cultural practices, the absence of community-wide waste management institutions, and a lack of collective responsibility. Despite these challenges, the role of ‘local champions’ demonstrates that community-driven solutions can emerge through adaptive and participatory approaches. The study proposes a novel, community-based waste management model tailored to the socio-cultural and geographical context of Kampung Nipah. This model places local champions as the main actors in creating an inclusive, adaptive, and local wisdom-based waste management system. With a combination of community-based regulations, ongoing education, and strict incentive and monitoring mechanisms. The findings emphasise the potential for

leveraging traditional values, such as 'gotong-royong', alongside institutional frameworks to address environmental challenges in underserved areas.

This research contributes to the existing body of knowledge by bridging anthropological perspectives and institutional theory to propose actionable solutions for waste management in coastal tourism contexts. It underscores the importance of empowering local communities and integrating cultural dimensions into environmental management strategies. Future research could focus on implementing and evaluating this waste management model in other rural settings, examining its scalability and adaptability across different socio-cultural contexts. Investigating the role of economic incentives and digital technologies in enhancing community participation could provide valuable insights for sustainable development initiatives.

While this study provides valuable insights into waste management strategies in rural coastal communities, it is essential to acknowledge certain limitations. The study's geographical scope is limited to specific regions, which may affect the generalisability of findings. Additionally, while ethnographic methods provide in-depth insights, they may not capture all systemic factors influencing waste management. Future research could expand the study to multiple coastal regions and incorporate mixed-method approaches for a more comprehensive analysis.

Declarations

The authors declare that they have no conflicts of interest.

References

Affandi, K.M., Agustono, B. and Zuska, F. (2022) 'Urban sanitation problems and the efforts to overcome it in Medan City, 1909–1930s', *Paramita: Historical Studies Journal*, Vol. 32, No. 1, https://doi.org/10.15294/paramita.v32i1.31353.

Afianti, N.F., Rachman, A., Hatmanti, A., Yogaswara, D., Anggiani, M., Fitriya, N. and Darmayati, Y. (2022) 'Microbial biofilm of plastic in tropical marine environment and their potential for bioremediation of plastic waste', *Journal of Ecological Engineering*, Vol. 23, No. 4, pp.261–275, https://doi.org/10.12911/22998993/145463.

Allison, E. (2014) 'Waste and worldviews: garbage and pollution challenges in Bhutan', *Journal for the Study of Religion, Nature and Culture*, Vol. 8, No. 4, pp.405–428.

Anugrah, N. (2022) *Konsep Ekonomi Sirkular Dukung Penanganan dan Pengelolaan Sampah*, 31 December, Kementerian Lingkungan Hidup Dan Kehutanan PPIDP [online] https://ppid.menlhk.go.id/Berita/Siaran-Pers/6982/Konsep-Ekonomi-Sirkular-Dukung-Penanganan-Dan-Pengelolaan-Sampah.

Apriliyanti, A. and Rondelli, F. (2020) *Implementation of Community-Based Ecotourism through Waste Management: The Study Case of Sukunan Tourism Village, Yogyakarta, Indonesia*.

Asteria, D. and Herdiansyah, H. (2022) 'The role of women in managing waste banks and supporting waste management in local communities', *Community Development Journal*, Vol. 57, No. 1, pp.74–92, https://doi.org/10.1093/cdj/bsaa025.

Barton, K.C. (2015) 'Elicitation techniques: getting people to talk about ideas they dont usually talk about', *Theory and Research in Social Education*, Vol. 43, No. 2, pp.179–205 Routledge, https://doi.org/10.1080/00933104.2015.1034392.

Ben-Haddad, M., Abelouah, M.R., Hajji, S., Abou Oualid, J., Alla, A.A. and Rangel-Buitrago, N. (2024) 'Scenic degradation and visual pollution along the Agadir coastline (Morocco): analysis and management', *Marine Pollution Bulletin*, Vol. 205, https://doi.org/10.1016/j.marpolbul.2024.116629.

Blunden, A. (2021) 'Anthony Giddens on structuration', *Hegel, Marx and Vygotsky*, pp.374–386, Brill, Leiden.

Caponi, V. (2022) 'The economic and environmental effects of seasonality of tourism: a look at solid waste', *Ecological Economics*, January, Vol. 192, p.107262, https://doi.org/10.1016/j.ecolecon.2021.107262.

Cappellaro, G. (2017) 'Ethnography in public management research: a systematic review and future directions', *International Public Management Journal*, Vol. 20, No. 1, pp.14–48.

Czekała, W., Drozdowski, J. and Łabiak, P. (2023) 'Modern technologies for waste management: a review', *Applied Sciences (Switzerland)*, Vol. 13, No. 15, https://doi.org/10.3390/app13158847.

Damayanti, M., Tyas, W.P. and Ningtyas, L.C.P. (2022) 'Community based integrated sustainable waste management in Lerep tourism village', *IOP Conference Series: Earth and Environmental Science*, Vol. 1098, No. 1, p.012051, https://doi.org/10.1088/1755-1315/1098/1/012051.

Danaher, G., Webb, J. and Schirato, T. (2000) *Understanding Foucault*, Allen & Unwin, Australia, London, California, New Delhi.

Díaz, E.S. (2023) 'Tourism and food sovereignty: case study on Bolivar's concheras (Esmeraldas, Ecuador)', *International Journal of Tourism Anthropology*, Vol. 9, No. 2, p.161, https://doi.org/10.1504/IJTA.2023.130851.

Dileep, M.R. (2016) 'Encyclopedia of Tourism', in Jafari, J. and Xiao, H. (Eds.): *Encyclopedia of Tourism*, Springer International Publishing, https://doi.org/10.1007/978-3-319-01384-8.

Drackner, M. (2005) 'What is waste? To whom? – An anthropological perspective on garbage', *Waste Management & Research: The Journal for a Sustainable Circular Economy*, Vol. 23, No. 3, pp.175–181, https://doi.org/10.1177/0734242X05054325.

Eller, J.D. (2009) *Cultural Anthropology Global Forces, Local Lives*, Routledge.

Elmosaad, Y.M., Al Rajeh, A.M., Llaguno, M.B.B., Alqaimi, S.S., Alsalman, A.M., Alkishi, A.Y., Hussain, H., Alhoudaib, M.A., Alnajim, O.S. and Belal, S. (2023) 'Self-reported household waste recycling and segregation practices among families in Eastern Region of Saudi Arabia: a cross-sectional study', *International Journal of Environmental Research and Public Health*, Vol. 20, No. 3, pp.1–16, https://doi.org/10.3390/ijerph20031790.

Fetterman, D.M. (2010) *Ethnography Step-by-Step*, 3rd ed., Sage, Los Angles, London, New Delhi, Singapore, Washington DC.

Fetterman, D.M. (2024) *Etnografi Langkah Demi Langkah: Vol. I*, Cantrik Pustaka, Yogyakarta, Indonesia.

Fruitema, M.L. (2015) *A Political Ecology of Solid Waste Management in Niadub, Panama*, University of Miami, Florida.

Gelter, J., Lexhagen, M. and Fuchs, M. (2021) 'A meta-narrative analysis of smart tourism destinations: implications for tourism destination management', *Current Issues in Tourism*, Vol. 24, No. 20, pp.2860–2874, https://doi.org/10.1080/13683500.2020.1849048.

Giddens, A. (1985) *The Constitution of Society Outline of Theory of Structuration*, First paperback, Polity Press, Berkeley, Los Angles.

Giddens, A. (1986) *Central Problems in Social Theory: Action, Structure, and Contradiction in Social Analysis*, University of California Press, Berkeley, Los Angles.

Giddens, A. and Sutton, P.W. (2021) *Essential Concepts in Sociology*, Polity Press, Cambridge, Medford.

Havis, D.N. (2014) 'Discipline', *The Cambridge Foucault Lexicon*, pp.110–119, Cambridge University Press.

He, Y., Zaremohzzabieh, Z., Rahman, H.A., Ismail, S.N.S. and Bin-Qiang, J. (2024) 'Applying participatory research in solid waste management: a systematic literature review and evaluation reporting', *Journal of Infrastructure, Policy and Development*, Vol. 8, No. 5, pp.1–28.

Herdiansyah, H., Brotosusilo, A., Negoro, H.A., Sari, R. and Zakianis, Z. (2021) 'Parental education and good child habits to encourage sustainable littering behavior', *Sustainability*, Vol. 13, No. 15, p.8645, https://doi.org/10.3390/su13158645.

Hikmah, Asrial and Sanusi, A. (2024) 'Measuring tourist satisfaction with facilities and cleanliness at beach destinations (a case study of Air Cina Beach Tourism, Lifuleo Village, Kupang Regency, East Nusa Tenggara, Indonesia)', *International Journal of Sustainable Development and Planning*, Vol. 19, No. 8, pp.3063–3074, https://doi.org/10.18280/ijsdp.190821.

Hunt, R. (1997) 'Economic anthropology', Barfield, T. (Ed.): *The Dictionary of Anthropology*, Blackwell Publisher, Oxford, UK; Massachusetts, USA.

Iskandar, M.R., Cordova, M.R. and Park, Y.G. (2022) 'Pathways and destinations of floating marine plastic debris from 10 major rivers in Java and Bali, Indonesia: a Lagrangian particle tracking perspective', *Marine Pollution Bulletin*, Vol. 185, https://doi.org/10.1016/j.marpolbul.2022.114331.

Ismail, K., Syakti, A.D., Raza'i, T.S., Lestari, F., Apdillah, D., Andia, B., Saputra, R., Ronaldy, R., Bahri, S. and Gatfur, A. (2024) 'The role of traditional knowledge and local values in community-based waste management in small islands: a case study of Penyengat Island', *BIO Web of Conferences*, Vol. 134, p.7013.

Ito, S. (2019) 'A polycentric waste management system in the Kathmandu Valley, Nepal', *Journal of Environmental Science and Sustainable Development*, Vol. 2, No. 1, pp.61–74.

Jambeck, J.R., Geyer, R., Wilcox, C., Siegler, T.R., Perryman, M., Andrady, A., Narayan, R. and Law, K.L. (2015) 'Plastic waste inputs from land into the ocean', *Science*, Vol. 347, No. 6223, pp.768–771, https://doi.org/10.1126/science.1260352.

Jokar, Z., Banavi, N., Taghizadehfard, S., Hassani, F., Solimani, R., Azarpira, N., Dehghani, H., Dezhgahi, A., Sanati, A.M., Farjadfard, S. and Ramavandi, B. (2024) 'Marine litter along the shores of the Persian Gulf, Iran', *Heliyon*, Vol. 10, No. 9, p.e30853, https://doi.org/10.1016/j.heliyon.2024.e30853.

Kahlke, R., Maggio, L.A., Lee, M.C., Cristancho, S., LaDonna, K., Abdallah, Z., Khehra, A., Kshatri, K., Horsley, T. and Varpio, L. (2024) 'When words fail us: an integrative review of innovative elicitation techniques for qualitative interviews', *Medical Education*, https://doi.org/10.1111/medu.15555.

Kandziora, J.H., van Toulon, N., Sobral, P., Taylor, H.L., Ribbink, A.J., Jambeck, J.R. and Werner, S. (2019) 'The important role of marine debris networks to prevent and reduce ocean plastic pollution', *Marine Pollution Bulletin*, Vol. 141, pp.657–662, https://doi.org/10.1016/j.marpolbul.2019.01.034.

Karcher (2023) *What Cleanliness Means for Travellers and Hosts: A Token of Appreciation*, 9 July [online] https://www.kaercher.com/ae/insidekaercher/company/kaercher-stories/whatcleanliness-means-for-travellers-andhosts.html

Khair, H., Utami, R., Lordye, G., Sari, U. and Pasaribu, E. (2022) 'Cleanliness assessment of Lake Toba tourist attractions from stakeholders' perspective', *IOP Conference Series: Earth and Environmental Science*, Vol. 1098, No. 1, https://doi.org/10.1088/1755-1315/1098/1/012005.

Kozak, M. (2016) 'Destination benchmarking', *Encyclopedia of Tourism*, pp.240–242, Springer International Publishing, Switzerland.

Kurniawan, T.A., Meidiana, C., Othman, M.H.D., Goh, H.H. and Chew, K.W. (2023) 'Strengthening waste recycling industry in Malang (Indonesia): lessons from waste management in the era of Industry 4.0', *Journal of Cleaner Production*, Vol. 382, https://doi.org/10.1016/j.jclepro.2022.135296.

Kurniawan, T.A., Othman, M.H.D., Hwang, G.H. and Gikas, P. (2022) 'Unlocking digital technologies for waste recycling in Industry 4.0 era: a transformation towards a digitalization-based circular economy in Indonesia', *Journal of Cleaner Production*, Vol. 357, https://doi.org/10.1016/j.jclepro.2022.131911.

Lamsal, M. (2012) 'The structuration approach of Anthony Giddens', *Himalayan Journal of Sociology and Anthropology*, Vol. 5, https://doi.org/10.3126/hjsa.v5i0.7043.

Lang, L. (2020) ''That's what fishers do now, we collect rubbish': the making of environmental subjects in a human-disturbed environment in Rio de Janeiro', *Ethnos*, Vol. 85, No. 2, pp.371–392, https://doi.org/10.1080/00141844.2019.1604557.

Lassiter, L.E. (2005) *The Chicago Guide to Collaborative Ethnography*, The University of Chicago Press, Chicago, London.

Lukoseviciute, G. and Panagopoulos, T. (2021) 'Management priorities from tourists' perspectives and beach quality assessment as tools to support sustainable coastal tourism', *Ocean and Coastal Management*, April, Vol. 208, p.105646, https://doi.org/10.1016/j.ocecoaman.2021.105646.

Luo, Y.Y., Not, C. and Cannicci, S. (2021) 'Mangroves as unique but understudied traps for anthropogenic marine debris: a review of present information and the way forward', *Environmental Pollution*, Vol. 271, Elsevier Ltd, https://doi.org/10.1016/j.envpol.2020.116291.

Marzali, A. (2005) *Antropologi dan Pembangunan Indonesia*, 1st ed., Prenada Media, Jakarta.

Mbah, M. and Franz, A. (2021) 'Revitalization and branding of rural communities in Cameroon using a circular approach for sustainable development – a proposal for the Batibo Municipality', *Sustainability (Switzerland)*, Vol. 13, No. 12, https://doi.org/10.3390/su13126908.

Mendieta, E. (2014) 'Biopower', Lawlor, L. and Nale, J. (Eds.): *The Cambridge Foucault Lexicon*, Cambridge University Press, New York.

Metilelu, O.O., Adeniyi, M.O. and Ekum, M.I. (2022) 'Modelling the dynamic effect of environmental pollution on coastal tourism', *Scientific African*, Vol. 17, p.e01364, https://doi.org/10.1016/j.sciaf.2022.e01364.

Mihai, F.C., Gündogdu, S., Markley, L.A., Olivelli, A., Khan, F.R., Gwinnett, C., Gutberlet, J., Reyna-Bensusan, N., Llanquileo-Melgarejo, P., Meidiana, C., Elagroudy, S., Ishchenko, V., Penney, S., Lenkiewicz, Z. and Molinos-Senante, M. (2022) 'Plastic pollution, waste management issues, and circular economy opportunities in rural communities', *Sustainability (Switzerland)*, Vol. 14, No. 1, https://doi.org/10.3390/su14010020.

Mulasari, S.A., Husodo, A.H., Sulistyawati, S., Sukesi, T.W. and Tentama, F. (2024) 'Community-driven waste management: insights from an action research trial in Yogyakarta, Indonesia', *The Open Public Health Journal*, Vol. 17, No. 1, pp.1–13.

Muliawaty, L., Firdausijah, R.T. and Achmad, W. (2022) 'Implementation of waste management policies by the main waste bank in realizing the effectiveness of the waste program in the City of Bandung', *Res Militaris*, Vol. 12, No. 2, pp.1906–1913.

Musiana, M., Ishak, S.N., Soamole, M.S. and Surasno, D.M. (2024) 'Analysis of community-based waste management policies to achieve clean and healthy environment', *West Sci. Interdiscip. Stud*, Vol. 2, No. 4, pp.749–753.

Nasab, A.Y. and Parseh, I. (2024) 'Effect of manual cleaning system on urban pollution and litter management in developing areas', *Results in Engineering*, March, Vol. 22, p.102089, https://doi.org/10.1016/j.rineng.2024.102089.

Naylor, R.S., Hunt, C.A. and Zimmerer, K.S. (2021) 'Bridging the troubled waters of tourism studies: from social capital and rural community development to livelihood sovereignty', *International Journal of Tourism Anthropology*, Vol. 8, No. 4, p.370, https://doi.org/10.1504/IJTA.2021.123199.

Ostrom, E. (1992) *Crafting Institutions for Self-Governing Irrigation Systems*, ICS Press, San Francisco, California.

Ostrom, E. (2005) *Understanding Institutional Diversity*, Princeton University Press, Princeton, New Jersey.

Ostrom, E. (2015) *Elinor Ostrom Governing the Commons The Evolution of Institutions for Collective Action*, 30th ed., Cambridge University Press, Cambridge.

Panwanitdumrong, K. and Chen, C.L. (2022) 'Are tourists willing to pay for a marine litter-free coastal attraction to achieve tourism sustainability? Case study of Libong Island, Thailand', *Sustainability (Switzerland)*, Vol. 14, No. 8, https://doi.org/10.3390/su14084808.

Pardini, K., Rodrigues, J.J.P.C., Diallo, O., Das, A.K., de Albuquerque, V.H.C. and Kozlov, S.A. (2020) 'A smart waste management solution geared towards citizens', *Sensors*, Vol. 20, No. 8, p.2380 [online] https://www.mdpi.com/1424-8220/20/8/2380.

Pasang, H., Moore, G.A. and Sitorus, G. (2007) 'Neighbourhood-based waste management: a solution for solid waste problems in Jakarta, Indonesia', *Waste Management*, Vol. 27, No. 12, pp.1924–1938, https://doi.org/10.1016/j.wasman.2006.09.010.

Patton, P. (1987) 'Michel Foucault', in Austin-Bross, D.J. (Ed.): *Creating Culture*, pp.226–242, Allen & Unwin, Sydney, London, Boston, New York.

Pujar, S.C. and Mishra, N.R. (2024) 'Delivering sustainable livelihoods to indigenous communities through ecotourism: insights from Western Odisha, India', *International Journal of Tourism Anthropology*, Vol. 9, No. 3, pp.181–200, https://doi.org/10.1504/IJTA.2024.138898.

Purwoko, A., Hartini, K.S., Basyuni, M. and Situmorang, M.D. (2023) 'Community-based mangrove tourism object development in Kampung Nipah, North Sumatra, Indonesia', *Universal Journal of Agricultural Research*, Vol. 11, No. 2, pp.241–254, https://doi.org/10.13189/ujar.2023.110203.

Qiang, M., Shen, M. and Xie, H. (2020) 'Loss of tourism revenue induced by coastal environmental pollution: a length-of-stay perspective', *Journal of Sustainable Tourism*, Vol. 28, No. 4, pp.550–567, https://doi.org/10.1080/09669582.2019.1684931.

Rama, M., Carral, E., González-García, S., Torres-Feijó, E., del Rio, M.L., Moreira, M.T. and Feijoo, G. (2022) 'Balance between hosts and guests: the key to sustainable tourism in a heritage city', *Sustainability (Switzerland)*, Vol. 14, No. 20, https://doi.org/10.3390/su142013253.

Revel, J. (2014) 'Power', *The Cambridge Foucault Lexicon*, pp.377–385, Cambridge University Press, New York.

Sakai, S., Yoshida, H., Hirai, Y., Asari, M., Takigami, H., Takahashi, S., Tomoda, K., Peeler, M.V., Wejchert, J., Schmid-Unterseh, T., Douvan, A.R., Hathaway, R., Hylander, L.D., Fischer, C., Oh, G.J., Jinhui, L. and Chi, N.K. (2011) 'International comparative study of 3R and waste management policy developments', *Journal of Material Cycles and Waste Management*, Vol. 13, No. 2, pp.86–102, https://doi.org/10.1007/s10163-011-0009-x.

Sakti, A.D., Sembiring, E., Rohayani, P., Fauzan, K.N., Anggraini, T.S., Santoso, C., Patricia, V.A., Ihsan, K.T.N., Ramadan, A.H., Arjasakusuma, S. and Candra, D.S. (2023) 'Identification of illegally dumped plastic waste in a highly polluted river in Indonesia using Sentinel-2 satellite imagery', *Scientific Reports*, Vol. 13, No. 1, pp.1–14, https://doi.org/10.1038/s41598-023-32087-5.

Shen, S., Sotiriadis, M. and Zhang, Y. (2020a) 'The influence of smart technologies on customer journey in tourist attractions within the smart tourism management framework', *Sustainability (Switzerland)*, Vol. 12, No. 10, https://doi.org/10.3390/su12104157.

Shen, S., Sotiriadis, M. and Zhou, Q. (2020b) 'Could smart tourists be sustainable and responsible as well? The contribution of social networking sites to improving their sustainable and responsible behavior', *Sustainability (Switzerland)*, Vol. 12, No. 4, https://doi.org/10.3390/su12041470.

Singer, J., Kieu, K.T. and Pravitasari, A.E. (2019) *Solid Waste Management in Tourist Destinations in Developing Nations: Case Studies in Hoi An, Vietnam, and Puncak, Indonesia*, pp.189–206, https://doi.org/10.1007/978-981-13-9173-6_11.

Sinthumule, N.I. and Mkumbuzi, S.H. (2019) 'Participation in community-based solid waste management in Nkulumane suburb, Bulawayo, Zimbabwe', *Resources*, Vol. 8, No. 1, p.30.

Sugiono (2024) *Abrasi yang Terjadi di Pantai Kelang Kabupaten Serdang Bedagai, Sumatera Utara*, 3 November [online] https://www.timenews.co.id/Image/Detail/15439/Abrasi-Yang-Terjadi-Di-Pantai-Kelang-Kabupaten-Serdang-Bedagai-Sumatera-Utara.

Susilawati, Harahap, R.H., Mulya, M.B. and Andayani, L.S. (2022) 'Behavior model of community-based sanitation management in coastal areas: confirmatory factor analysis', *Heliyon*, Vol. 8, No. 11, https://doi.org/10.1016/j.heliyon.2022.e11756.

Taye, A., Assefa, E. and Simane, B. (2024) 'Analysis of practices and factors of solid waste management among urban households of Addis Ababa City, Ethiopia', *Environmental Challenges*, September, Vol. 14, p.100811, https://doi.org/10.1016/j.envc.2023.100811.

The ASEAN Secretariat (2016) *Asean Clean Tourist City Standard*, Sekretariat ASEAN [online] https://asean.org/wp-content/uploads/2012/05/ASEAN-Clean-Tourist-City-Standard-rev.pdf (accessed 3 July 2024; 06:12 AM).

Tsai, F.M., Bui, T-D., Tseng, M-L., Lim, M.K. and Tan, R.R. (2021) 'Sustainable solid-waste management in coastal and marine tourism cities in Vietnam: a hierarchical-level approach', *Resources, Conservation and Recycling*, October, Vol. 168, p.105266, https://doi.org/10.1016/j.resconrec.2020.105266.

UNWTO (2009) *UNWTO Tourism Resilience Committee Stresses Need for 'Smart Tourism'* [online] http://sdg.iisd.org/News/Unwto-Tourism-Resilience-Committee-Stresses-Need-for-%E2%80%9Csmart-Tourism%E2%80%9D/ (accessed 3 July 2024; 06:35 AM).

Williams, I.D. (2014) 'The importance of education to waste (resource) management', *Waste Management*, Vol. 34, No. 11, pp.1909–1910, https://doi.org/10.1016/j.wasman.2014.08.003.

Winarto, Y.T. (2011) 'Bisa Dewek: Menuju Etnografi Komplisitas, Suatu Dinamika', in Winarto, Y.T. (Ed.): *Bisa Dewek: Kisah Perjuangan Petani Pemulia Tanaman di Indramayu*, pp.1–21, Gramata Publishing, Depok, Indonesia.

Winarto, Y.T. (2019) 'Melintasi Disiplin Ilmu, Mendampingi Petani: Karya Antropologi Berbasis Agrometeorologi Dalam Perubahan Iklim', in Winarto, Y.T., Hidayat, R.S. and Budianta, M. (Eds.): *Meretas Batas Ilmu: Perjalanan Intelektual Guru BEsar Sosial Humaniora*, pp.211–249, Yayasan Pustaka Obor Indonesia, Jakarta, Indonesia.

Yan, Y. (2005) 'The gift and gift economy', in Carrier, J.G. (Ed.): *A Handbook of Economic Anthropology*, Edward Elgar Publishing.

Zhang, L. and Yang, J. (2016) 'Smart tourism', in Jafari, J. and Xiao, H. (Eds.): *Encyclopedia of Tourism*, pp.862–863, Spinger International Publishing, Switzerlad.

Zorpas, A.A. (2020) 'Strategy development in the framework of waste management', *Science of the Total Environment*, Vol. 716, https://doi.org/10.1016/j.scitotenv.2020.137088.

Zuska, F. (2008) *Relasi Kuasa antar Pelaku dalam Kehidupan Sehari-hari (Studi Kasus di Kancah Pengelolaan Sampah Kota*, FISIP USU Press, Medan, Indonesia.

Zuska, F., Naria, E. and Zulfendri, Z. (2024) 'Mengenyahkan Sampah Plastik Benalu dengan Ekobrik', *Pelita Masyarakat*, Vol. 5, No. 2, pp.151–167, https://doi.org/10.31289/pelitamasyarakat.v5i2.11417.

Zuska, F., Naria, E., Febira, N. and Aulia, F. (2023) 'Making ecobrick: powerful reduce plastic trash', *Jurnal Pengabdian Kepada Masyarakat*, Vol. 8, No. 2, pp.1332–1345.

Zuska, F., Naria, E., Hasibuan, H.M. and Prasetyo, H. (2022) 'Bank Sampah dan Budaya Menabung: Sebuah Refleksi dari PPM di Desa Marendal II', *Aceh Anthropological Journal*, Vol. 6, No. 2, p.120, https://doi.org/10.29103/aaj.v6i2.7478.