

Significance of Reverse Logistics for Sustainable Tourism in Bangladesh: An Analytical Exercise

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ABSTRACT: One thing that has raised concerns for people across the globe is the rising threats to the environment and the fast-approaching calamity of global warming and climate change. Companies play a key role in contributing to the damage done to the environment on a daily basis. Hence, they need to take sustainability into consideration to reduce their harmful impact on the environment. This study aims to understand the implications of incorporating reverse logistics and waste management practices and the challenges faced by establishments in the urban tourism industry of Bangladesh. Cox's Bazar is home to the largest sea beach in the world and is one of the most visited places by both domestic and foreign tourists in Bangladesh. However, the lack of Sewerage Treatment Plants (STPs) and a poor waste management system has been a major hurdle. This study explored the current condition of waste management practices and the challenges establishments may face if reverse logistics and proper waste management practices are implemented. Through a focused group discussion with key stakeholders, the study found that most establishments still need a sewage treatment plant and, thus, are mishandling wastes, leading to several complications for both the tourists and the local residents.

In most cases, recyclable waste is not separated and, therefore, is not being recycled. Mismanagement of waste is also posing a threat to marine life while also contributing to environmental pollution. Irregular waste collection, lack of STPs, lack of segregation of the different types of waste, and many other unsafe practices contribute to several adverse environmental and social outcomes. Despite the lack of proper practices and systems in place at present, the urban tourism industry of Bangladesh is gradually moving towards a greener system with a vision for a central STP system in collaboration with the government. Moreover, some establishments in the industry are engaging in collaborative cleaning and waste prevention practices.

KEYWORDS: Reverse Logistics, Supply Chain, Waste Management, Sustainable Tourism, Green Tourism, Green Supply Chain.

1. INTRODUCTION

Bangladesh has had a rapidly growing economy in the past few years, with notable growth in some industries. One of the key players is the Ready-Made-Garments (RMG) sector, which exports to many countries in bulk quantities (*Bangladesh: The First Asian Tiger in Making in South Asia, n.d.*). However, the tourism industry has latent potential for being a major contributor to the economic growth of Bangladesh.

Cox's Bazar, Bangladesh, is home to the largest sea beach in the world. A part of the largest contiguous mangrove forest can also be found here. This beautiful country in Asia also has a myriad of other sites that attract both domestic and foreign tourists every year. However, Bangladesh is lacking a proper management and monitoring of its tourism industry, especially the urban tourism industry. Several recent studies have pointed out the gaps in the industry that have led to poor waste management systems.

Considering the potential of the tourism industry of Bangladesh, initiatives should be taken to improve the overall management of the establishments and the practices that directly or indirectly impact the experience of the tourists. Some major factors contributing to poor waste management are insufficient financial backing, lack of proper regulations, lack of awareness among people, etc., according to Abedin and Jahiruddin (2015). The current waste management practices are insufficient and are consequently limiting the country's ability to achieve sustainable development (Haque *et al.*, 2021). There is a direct connection between the growth of the tourism industry and the achievement of sustainable development in Bangladesh. Sheikh (2020) discusses a few ways to develop this industry in Bangladesh, which can ensure sustainable development and economic growth. Several studies have zeroed in on the sustainability factor of tourism and its many aspects. An empirical study by Freytag and Vietze (2013) on the potential of nature to promote development shed light on whether or not sustainable tourism can lead to

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economic growth. The study provided empirical evidence for the notion that sustainable tourism can be linked to economic growth. The tourism industry is one of the biggest sources of economic growth, according to Khalil *et al.* (2007). The study of Khalil *et al.* (2007) also shows empirical evidence to support the above-mentioned notion. According to Paramati *et al.* (2017), tourism can fast-track economic growth if sustainable policies and proper management are implemented.

With the sustainability revolution already set in motion, Bangladesh has to step up and match the pace with the rest of the world to continue to grow economically and rise to the environmental standards followed worldwide. Incorporating sustainable practices in the tourism industry can not only lead to better management and, thus, a better experience overall but also lead to increased attention of the rest of the world to Bangladesh as a potential tourism hub in Asia.

The rest of the paper is organized as follows. Section 2 presents a brief review of existing literature; Section 3 highlights the methodology used; Section 4 discusses the results and findings; and Section 5 concludes the paper.

2. LITERATURE REVIEW

Presently, a major concern in the tourism industry is municipal waste management or MSW (A Manual for Water and Waste Management: What the Tourism Industry Can Do to Improve Its Performance, 2017). This issue is even more severe for developing countries since they see an increased level of municipal solid waste generation due to rapid industrialization and urbanization (Chen *et al.*, 2010).

While developed countries have been able to adopt effective and efficient approaches to waste management, developing countries have been lagging due to many factors. According to Wilson (2007), some countries are struggling to survive, and under such circumstances, things like waste management are the least of the people's concerns. Some studies have also focused explicitly on Municipality Solid Waste Management (MSWM), like that of Reddy (2011).

Reverse logistics (RL) is described as "the process of planning, implementing, and controlling the efficient, cost-effective flow of raw materials, in-process inventory, finished goods, and related information from the point of consumption to the point of origin to recapture value or proper" (Rogers and Tibben-Lembke, 1998) by the American Reverse Logistics Executive Council. Generally, reverse logistics begins with end users (first customers), where used products are collected from customers (return products), and then attempts to manage EOL products through various decisions are made, including recycling (To have more raw materials or raw parts), remanufacturing (to resell them to second markets or, if possible, to first customers), repairing (to sell in the second markets through fixing), and finally, disposing of some used products (Govindan *et al.* 2015). According to another definition, reverse logistics refers to operations, including the handling and managing of items such as products, materials, components, and even entire technical systems that need to be retrieved (de Brito *et al.*, 2002).

According to the research of Zorpas *et al.* (2014), around 1 kg of solid waste can be created by a hotel guest on average. Another study found that foreign guests visiting from outside the country generate more waste in comparison to domestic guests. Furthermore, this study found that guests staying in larger hotels generated 1.5 times the waste of those staying at smaller hotels (Brown *et al.*, 1997). Waste generation is usually higher in urban areas than rural areas due to many factors. A study on solid waste management in the tourism industry of the Maldives showed that 65% of the waste generated in the tourism industry was linked to urban areas (Peterson, 2013). Depending on the composition of the waste, it can have a myriad of adverse environmental outcomes. Plastic is one of the major players in environmental pollution, and it can significantly contribute to climate change. Despite such detrimental effects, only 20% of plastic gets recycled (Chandran *et al.*, 2020). Apart from the mismanagement of waste, plastic waste generation is one of the major issues that people need to combat at present times.

Radoslav (2013) has analyzed the specifics of the RL industry by discussing the activities labeled as reverse logistics (RL) in the services industry, specifically in the tourism industry. The paper focused on the issue of what constitutes the reverse flows in tourism, namely their material and intangible components. The study used exploratory-descriptive research, with 87 organizations providing tourism and travel-related services (hotels, restaurants, and travel agencies), which focused on how businesses in the Czech Republic approach RL. However, the paper didn't include any waste management factors in the context of the tourism industry.

Wei Xia (2020) from Yangtze Normal University discussed the actual situation of China's tourist destination in the context of the Green Cultural Industry. In order to reduce the environmental impact of tourism, reduce costs, increase efficiency, and support the sustainable development of tourism destinations, the study looked into the scientific operation mode of reverse logistics, including recycling logistics and waste flow in tourist destinations. Xia (2020) also stated that while some tourism and cultural businesses greatly enrich the economy and help society, they also hurt the natural surroundings of popular tourist spots. The study also revealed that most closed-end management in the tourism industry involves the manufacturer as the leader and the subsidiary firm as the seller.

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Reddy (2011) provides an in-depth study that entails the management of municipal solid waste, waste collection and characterization, waste disposal, generating energy from waste, and much more. Many research studies suggest opting for the promotion of waste reduction and addressing the core of the problem, including the study of Giurea et al. (2018), who stated that waste reduction should precede addressing other issues like waste categorization and disposal.

Chen *et al.* (2010) highlight the challenges of MSWM in China, stating the need for increased treatment capacity in less developed regions, dealing with unsafe waste disposal, addressing the upcoming issues of further urbanization, and much more. One of the crucial issues discussed in the literature of Chen et al. (2010) is how one approach to MSW might only be effective for some regions, even within the same country. Many studies suggest the adoption of the "Waste Management Hierarchy," a multi-layered approach to waste management that entails preventing, minimizing, reusing, recycling, recovering, and lastly, disposing of waste. In the context of expanding urban South Asia, Amin *et al.* (2020) have talked about the significance of cooperative environmental governance (CEG) for effective waste management and waste-to-energy (WtE) generation. The research also demonstrated the inefficient waste management process (primarily for municipal solid waste) was caused by the low level of local inclusion. A large portion of the population lives in metropolitan areas; South Asia is expected to generate around 466 and 661 million tonnes of garbage annually by 2030 and 2050, respectively (Kaza *et al.*, 2018).

However, there has been no investigation into waste management practices in Bangladesh's tourism industry. This study aims to fill in the gap and provide a holistic view of the lack of and multiple aspects of waste management and reverse logistics practices in the urban tourism industry of Bangladesh. It is noteworthy that studying waste management and reverse logistics in the context of Bangladesh can also benefit other developing countries, especially South Asian countries. This study can be used as a springboard for further research in the field of waste management and RL.

3. METHODOLOGY

This study employs a qualitative research methodology to thoroughly explore the intricacies of waste management practices within the hotel industry. Qualitative methods are chosen deliberately for their capacity to delve deeply into the attitudes and perceptions of participants regarding waste management, providing rich insights into this multifaceted phenomenon. By focusing on subjective feelings, perceptions, and behaviors, qualitative research offers a nuanced understanding that quantitative approaches often cannot capture.

Data collection is conducted through focused group discussions (FGDs), a well-suited method for gathering diverse perspectives and promoting dialogue among participants. FGDs involve a small group engaging in structured discussions on a specific topic, enabling participants to share their experiences, viewpoints, and insights. In this study, participants include individuals with relevant expertise in waste management, such as hotel managers, environmental officers, and sustainability specialists, ensuring a comprehensive exploration of the subject matter.

The FGDs are carefully facilitated in a welcoming and inclusive environment to encourage open and honest communication. Using open-ended questions within a semi-structured discussion guide, participants are prompted to discuss various aspects of waste management practices, including handling different types of waste and sewerage systems. This approach allows for a thorough examination of experiences, challenges, and potential opportunities for improvement in waste management strategies.

Qualitative data from the FGDs are rigorously analyzed using content analysis techniques. Verbal transcriptions of the discussions are scrutinized repeatedly to identify themes, sub-themes, and recurring patterns within the data. These themes are then organized into a coherent framework using thematic analysis methodologies, facilitating a meaningful interpretation of the data and the extraction of significant insights and conclusions.

Throughout the study, ethical considerations are paramount. Participants' privacy and rights are safeguarded through informed consent forms and assurances of confidentiality. Responses from participants are anonymized, and strict protocols are in place to ensure that only the research team has access to securely stored data. By adhering to ethical standards, the study upholds the integrity of the research process while respecting the dignity and autonomy of the participants involved.

4. RESULTS AND FINDINGS

From the findings of the focused group discussion (FGD), we uncovered a heavy reliance on Cox's Bazar Municipality for waste collection and dumping. Only a few establishments have proper waste management processes, such as building Sewage Treatment Plants (STPs) or using septic tanks. Nevertheless, there is a lack of segregation of waste material depending on their degradability, recycling potential, nature, etc. Based on the responses collected for this study, we found that some hotels have their own septic tanks for managing solid and liquid waste. In contrast, others may resort to direct drainage due to a lack of awareness, accountability, and expertise. There is also a practice of connecting rooms' sewerage lines to the septic tank, which results in organic waste going down to the septic tank. Other waste materials collected from the rooms are placed in dustbins and later

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cleaned by cleaners from the municipality. According to Commodore Nurul Absar, Chairman of Cox's Bazar Development Authority, only 6 hotels have STPs among 200+ hotels in Cox's Bazar, which is shockingly low. The findings also show that drainage issues and overflow pose significant challenges, leading to blocked drains and potential health hazards. All the participants have received several complaints from local residents and tourists about waste materials on the beach, bad odors, mosquito menace, and water pollution of the Sea.

The absence of sufficient numbers of STPs has major environmental implications, including pollution of the sea, rivers, and surrounding areas. It also affects the local residents, leads to wastewater overflow, and poses risks to marine life. The mismanagement of waste adversely impacts the overall experience of tourists, which consequently hurts the country's economy. Establishing a central STP system for all hotels is proposed as a solution to eliminate the adverse environmental impact.

Building STPs and using septic tanks can positively impact waste management on a large scale. Challenges with municipal cleaners and waste collection, such as irregularity and lack of resources, contribute to unpleasant odors and inconveniences. It is evident that challenges in effectively managing hotel waste arise from the absence of proper waste collection and dumping systems, leading to dependence on irregular waste collection by the Municipality. Additionally, other hotels' mismanagement of liquid waste affects guests' experiences and the local environment. Insufficient waste collection and dirty roads further add to existing problems. The barriers faced in implementing RL in waste management in the context of Cox's Bazar district are-

1. Ineffective and inefficient system and lack of monitoring.
2. Lack of coordination, mandate, and accountability.
3. Insufficient support from the government.
4. Absence of a proper, cost-effective, and convenient waste management plan.
5. Improper garbage disposal by the general public and tourists.

The major themes identified from the discussion are the lack of proper awareness, adequate initiatives, and the proposal for a central sewage treatment system. The findings highlight the lack of substantial progress in establishing sewerage treatment plants in Cox's Bazar. While there have been discussions surrounding improvement plans, those were primarily focused on other aspects rather than waste management or setting up STPs. Limited execution and lack of implications of discussed programs have led to skepticism among some participants. However, an ongoing proposal for a central STP system involving collaboration between government entities and the Cox's Bazar Development Authority exists.

Table 1: Waste Management Practices in Cox's Bazar Hotels

Waste Management Practices	Details
Reliance on Cox's Bazar Municipality	- Heavy dependence on the municipality for waste collection and dumping
	- Lack of proper segregation of waste materials based on degradability
	- Only a few hotels have their STPs or septic tanks
	- Drainage issues and overflow are significant challenges

Some establishments actively engage in collaborative cleaning and waste prevention practices. Awareness creation and advocacy efforts are being made through seminars and discussions to address water-related issues and waste management. However, there is a recognition of the lack of knowledge and adherence to global hotel standards among some hotel authorities. Initiatives to reduce water consumption and promote waste recycling, such as towel reuse and collaborating with recycling companies, are also being implemented. However, according to Mr. Mohammad Bin Abdullah (Max), District Manager, SBSKS, News Editor, The Daily Tourist, hotels are not interested in taking up new initiatives as their primary focus is on revenue generation and not on increasing facilities and making the experience more enjoyable and convenient for tourists.

There's hope because the hotels implement reverse logistics practices in their waste management processes. Waste is collected from rooms and delivered to the Municipality or a recycling company. Additionally, efforts are made to manage waste on the beach, including providing bins for guests and visitors, with regular collection and proper disposal. The focus on cleanliness and

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maintaining a clean environment is also evident. Environmental considerations, particularly avoiding adverse effects on the sea or the environment, are considered by implementing STPs.

We got the following themes and sub-themes based on the thematic analysis of the reverse logistics and cost-effectiveness part.

1. Need for Better Solutions and Support:

- Participants expressed the need for Cox's Bazar Municipality to develop better waste management plans.
- They suggest that if the municipality financially incentivizes hotels, they would be motivated to move towards better waste management plans.
- Participants emphasize the potential for waste to be considered a source of income.
- The success of DNCC (Dhaka North City Corporation) and DSCC (Dhaka South City Corporation) in generating waste revenue is an example.

2. Adoption of New Technologies:

- Participants propose adopting new technologies to convert waste into power and fertilizers.
- They believe that knowledge-based cultures and the principles of the Fourth Industrial Revolution should be embraced to drive innovation in waste management.
- The positive experiences of DNCC and DSCC in implementing such technologies are mentioned as a precedent for Cox's Bazar Municipality to follow.

3. Benefits for Hotels:

- Participants suggest that hotels should explore new technologies for waste management as a way to attract more customers.
- The implication is that effective waste management can enhance a hotel's reputation and customer satisfaction.

4. Enforcement of Appropriate Waste Disposal Systems:

- Participants expressed concern about the lack of Appropriate Waste Disposal Systems, particularly the absence of Sewage Treatment Plants (STPs) in many hotels.
- They claim hotels without STPs or an appropriate waste disposal system should not be granted operating licenses.
- The negative effects of improper waste management on the environment are underlined, especially concerning sea pollution.

5. Government Support and Subsidies:

- Participants understand that opting for newer and more advanced systems would be accompanied by financial commitments that could potentially be a burden for small and medium establishments.
- They realize the importance of government aid in the transition process of shifting to newer systems.
- Budget considerations are emphasized as being crucial, and participants say that having sufficient capital would make it possible to incorporate new technologies.

Table 2: Identified Themes from Focused Group Discussion

Theme	Key Points
Need for Better Solutions and Support	- Financial incentivization by Cox's Bazar Municipality
	- Viewing waste as a potential source of income
	- Adoption of new technologies for waste management
Adoption of New Technologies	- Conversion of waste into power and fertilizers
	- Embracing knowledge-based cultures for innovation
Benefits for Hotels	- Enhancement of reputation and customer satisfaction
	- Attraction of more customers through effective waste management
Enforcement of Appropriate Waste Disposal Systems	- Concerns about lack of STPs in many hotels
	- Calls for government regulations and license requirements
Government Support and Subsidies	- Importance of government aid in transitioning to newer waste management systems
	- Budget considerations for incorporating new technologies

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These themes suggest that participants in the study desire better waste management options in Cox's Bazar. They are aware of the potential advantages of new processes, the need for government aid and subsidies, and the need to implement proper waste management practices. All of the FGD participants agreed that the sea's environment is very important to their customers, and they believe that implementing reverse logistics in waste management would enhance the beauty of Cox's Bazar. According to the General Secretary of Cox's Bazar Tour Services Association, customers compare the cost of visiting Cox with other local or foreign tourist destinations. If a clean sea or environment is not provided, the tourism of Cox's Bazar will fall behind in the race.

5. CONCLUSION

This study aimed to shed light on many aspects of waste management and RL practices in the tourism industry of Bangladesh, including the challenges that establishments may face if proper waste management practices were to be implemented. Successful implementation of such methods can help the country move towards sustainable development and lead to economic growth in the long run while also putting Bangladesh's tourism sector in a more favorable light globally. Through the focused group discussion (FGD) conducted for this study, this study highlighted the problems arising from the current waste management practices existing in Cox's Bazar, Bangladesh, which cause several issues for tourists and the residents of the area.

This study focused on the poor waste management practices among the establishments in the tourism industry of Bangladesh, including hotels, motels, etc. The lack of sewerage treatment plants (STPs) in most of these establishments is a major threat to the development of this industry. The implementation of RL is also not a common scenario in Bangladesh's industry. The shortcomings are not only creating problems for the tourists but also painting a negative image of the tourism destinations and the country, which can potentially hurt the country's economy in the long run while significantly impacting the establishments. A lack of awareness among the establishments is a contributing factor to Bangladesh's current waste management condition.

Even though this study has highlighted the major problems contributing to the poor condition of the waste management system in the urban tourism industry of Bangladesh, there is still so much more to explore to create awareness and lay a foundation for relevant parties to act on the immediate demand for a better system. A limitation of this study is not having a larger set of respondents that could have added more value in terms of why the establishments lagging behind. Surveying could have added much value to this study as survey questionnaires can be designed to extract very specific information, and survey findings are easier to translate into meaningful insights through data analysis. This study has important implications for several parties involved, but most importantly, for the industry and government establishments. Bangladesh has the potential to attract a lot more tourists owing to its natural sites and resources. Since it is a developing country, it needs to maximize its chances of growth and development using its resources. Additionally, it needs to improve the existing sectors that are doing well and have the potential to further improve, including the tourism sector.

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