

A burning challenge to the environment environmental sciences essay



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Individual Assignment

Solid Waste Management In Maldives: A Burning Challenge To The Environment

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HMD 376D: Sustainability in Hospitality Industry

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Executive Summary

Solid waste is major source of pollution for the planet that poses a threat to the human health and environment. This type of waste is commonly generated in nearly all activities that humans undertake. To date, the main solution to managing this waste has been to throw it away - most frequently

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where there is a waste collection system to bury it under the ground in a landfill, or to burn it openly in the air, producing greenhouse gases in the process (World Tourism Organisation, 2004). Due to the risks and negative impacts involving the environment which often ties with the image of the destination, it is increasingly necessary for destinations to conduct proper monitoring of waste generation and manage its treatment. Like many other developing countries, solid waste management in the Republic of Maldives is a tough challenge that is hampered by economic, ecology, cultural and other operational factors. Resorts in the Maldives are widely popular among the tourists, where the image of the islands draws many to visit for the nature and sightseeing. While the natural and cultural resources may be unique, they are also vulnerable and limited in extent. These characteristics serve as important assets for tourism in the Maldives, but unfortunately they are starting to diminish due to the unreliable solid waste management techniques practiced by the country which took a toll on the environment. Managing the solid waste has thus, turned out to be a major concern in the Maldives where this issue needs to be examined further.

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Introduction

In recent years, the resort industry has seen an exponential growth in developing countries due to a rise in domestic and international tourism. People live in a global economy now more than ever. While information and communication becomes readily available due to globalization, the desire and ability to travel abroad gradually increases. Today, resorts have evolved to become one of the popular choices among travelers, where tourism

activities at these properties have increased considerably. The definition of "resort" has expanded to include any facility that provides entertainment and recreation in combination with lodging. Resorts can be characterized in terms of their proximity to primary markets, the setting and primary amenities, as well as the mix of residential and lodging properties (Mill, 2008). In this report, large scale resorts will be focused where the pollution of solid waste will be addressed.

Background of Solid Waste Pollution in Large Scale Resorts

Presently, relative to the increasing demand for travel, resorts have developed year-round operation and positioned themselves to move through life cycles. With the growth of the resort industry comes the problem of managing the solid waste generated by the daily operation of the properties. In such premises which involve high concentrations of tourist activities, waste disposal poses a serious problem whereby improper disposal can lead to a major destruction to the natural environment. Taking Maldives as a case study, whose 101 resorts are spread across the island republic and are economically dependent on tourism, solid waste disposal has become one of the most critical environmental issues faced by these resorts. Resorts in Maldives take up the majority under the accommodation types offered (Appendix B). The amount and rate of solid waste generated vary throughout the country, and is especially prominent in Malé, the capital and the most populous city in the Republic of Maldives. Astonishingly, the amount of solid waste generated in the Maldives rose from 248, 000 tons to 324, 000 tons between 2007 and 2012, indicating an increase of 30 percent (Magic Maldives, 2013). According to a report generated by AIT-UNEP Regional

Resource Centre for Asia and the Pacific (RRC. AP), it was found that an average of 2.48 kg of waste are produced per capita per day in Malé, while the average solid waste generation in the resorts used to stand at 7.2 kg per guest per day, putting a major pressure on the environment as the rate continues to increase at an alarming rate over the past 10 years (RRC. AP, 2002) (Appendix A). In addition, it has also been revealed by the Environment Research Centre that no proper operation of waste management facilities was put in place. To address the environmental issue, the Government of Maldives have since introduced a national solid waste management framework in 2008 and are actively working to reduce waste-related impacts (Environment Research Centre, 2008).

Stakeholders Involved

Stakeholders serve as a reinforcement toward the importance of a solid waste management framework and are defined as "key persons, groups or institutions with an interest in a project or programme" (Snel, & Ali, 1999). Such personnel would involve primary, secondary and external stakeholders, including local authorities, the city council, provincial and national governments, non-governmental organizations (NGOs), community-based organizations (CBOs), private formal/informal sectors, external support agencies, citizens, service providers as well as service users from commercial establishment. In order to achieve sustainability in solid waste management, it is important to consider the different roles, interests, influences and power structures of the stakeholders prevalent in this subject (Klundert, 2000). Stakeholders are particularly important in the implementation of a solid waste project or programme, either directly or

indirectly affected. Regardless of the classification, this group is dependent on the specific project objectives which will be further elaborated in this report.

Managing the Waste

Classification of Solid Waste

Solid waste, is referred to as the discarded, unwanted or useless solid materials generated from a combination of residential, industrial and commercial activities in a given area. There are several forms of solid waste which may be categorized according to its origin, contents, or hazard potential (CYEN, n. d.). For example, the common types of solid waste generated by a resort would be garbage, such as the decomposable wastes from food; non-decomposable wastes like metal, glass, and plastics; sewage-treatment solids, as well as other forms of wastes (Sharma, 2009). Looking at the types of waste, one will be able to relate the negative side effects associated with not discarding them in a responsible manner.

Dealing with the Negative Impacts

In large scale resorts, the massive amount of waste generated and how to deal with it has created a problem within the industry. As compared to hotels, resorts tend to encounter more problems regarding the amount of waste that is generated as well as energy that is consumed (Tse, 2009). This is relatively due to the vast areas of land that take up the resorts, which produce more waste as tourism activities increase. Furthermore, the maintenance and landscaping of the resorts are to be taken into account toward the contribution of solid waste as well. The collection and disposal

operation of solid waste has presented a manifold of environmental issues for the resorts, ranging from public health to social problems and liability risks. Resorts are expected to be autonomous units that generate their own independent supplies of power and water, thus these properties are also responsible for managing their own sewage and solid waste (Magic Maldives, 2013). Likewise, it should be noted that most of the non-decomposable wastes are not biodegradable. In other words, they do not get broken down through inorganic or organic processes, therefore posing a threat to the environment as they accumulate (Sharma, 2009). When left to decay, these wastes are likely to attract vermin in its surrounding areas, which may very well decline the guests from residing at the resort. Moreover, it also reduces the usage of the land for other, more useful purposes.

Importance of Solid Waste Management

Solid waste management is particularly important, more so at times when the level of visitor use is greater than the environment's ability to cope with this use within the acceptable limits of change, which results in the increased likelihood of negative impacts from tourism. Much of these waste and pollutants are produced as a by-product of domestic and industrial activities, along with the rapid developments within the resort industry. In a popular resort destination like Maldives which attracts more than 900, 000 tourists yearly, solid waste management is not to be taken lightly as it can result in potential environmental threats that may lead to depletion of its natural resources - the main attraction of the country. Maldives is ideally known for its scenic environment and natural beauty, including its marine natural resources, white sand beaches and blue ocean, accompanied by clean air

and pleasant climate (Wikipedia, 2013). As these natural resources are extremely fragile and susceptible to adverse environmental events, it puts across enormous pressure on the resorts in managing the solid waste responsibly to avoid improper disposal that may lead to harmful effects such as increased pollution or natural habitat loss (United Nations Environment Programme, 2001). Similarly in various kinds of large scale resorts around the world, the inappropriate method of solid waste disposal can place these properties in a critical or risky position, as the areas may likely get exposed to lethal environmental impacts threatened by solid waste pollution.

Methods of Solid Waste Disposal

In this report, solid waste management has been highlighted as a key element for the reduction of the environmental impacts relative to the resort industry which, according to the scale and the nature of its tourism activities, produces large quantities of organic and inorganic waste. In the early days of tourism business, onsite burying of solid waste was practiced but was later disapproved due to land scarcity. At the present, disposal of solid waste on land is the most common method practiced in most of the countries, whereby 90 percent of solid waste goes straight to the landfill. This practice was however, viewed by many to be uneconomical and unsustainable as it places unwanted stress on the fast-shrinking landfill space. Incineration is the second in line that accounts for most of the remaining waste, followed by composting of solid waste to a much lesser extent (Leach, 2013). In the case of incineration, it can give rise to air pollution when toxic materials are not set aside and recycled but are instead burned, resulting in the release of pollutants into the air. In a country analysis paper prepared by Maldives as

an input for the Fourth Regional 3R Forum in Asia which took place in March 2013, it has been revealed that waste management activities on its tourist resorts fall under the jurisdiction of the Ministry of Tourism, Arts and Culture. According to the tourism's " Regulation on Disposal of Garbage", all tourist resorts are to burn their combustible wastes, including plastic bags, in on-site incinerators, and to crush cans and bottles (United Nations Centre, 2013). The resorts tend to practice the disposal of solid waste in an ad-hoc manner, by dumping them onto uninhabited islands or at the shore, or transporting them to Thilafushi, a municipal landfill site located 5 km away from Malé, where waste is then burnt openly (IFC World Bank Group, 2011). Non-biodegradable waste are disposed near the beach in many islands and buried in a few others, whereas organic waste are composted at the home backyards in most of the islands (RRC. AP, 2002). A study by the country shows that organic matter comprises most of the wastes that are generated in Malé, whereby the current recycling rate stands at 15% of the solid wastes produced (Appendix C). A To date, specific criteria have not been used to select the sites for waste disposal as islands are chosen at random as a substitution for incineration sites (Magic Maldives, 2013). The practice of dumping the waste and burning them openly can cause significant damages to the environment, tourism and destination, involving various risks resulting from poor solid waste management. That said, selecting a disposal method is dependent almost entirely on costs, which in turn are likely to reflect local circumstances (Sharma, 2009). By managing the waste in a proactive way, such risks could be well avoided and the resorts would be able to witness improved performance with a reduction in operating costs while at the same

time, be able to preserve local nature attractions such as coral reefs and beaches.

Reducing the Waste

Solid Waste Reduction Initiatives

Solid waste disposal serves as a worldwide problem that associates with and revolves around significant environmental issues. Although efforts have been stepped up in some communities to reduce the solid waste pollution, this problem still remains and exists till date. To address the issue of solid waste pollution in resorts, there has to be proper controls and measures in place to effectively manage the solid waste generated within the properties. Such actions could involve regular monitoring, appropriate collection, transportation, processing, recycling, and disposal of the solid waste produced (CYEN, n. d.). In this regard, current initiatives practiced by the resorts should be assessed to monitor and measure the results that follow. With reference to the resorts in Malé, it was known that solid waste which could not be burned was disposed into the sea. This practice is however, now prohibited by the law. A study conducted by the Environment Research Centre shows that the Government of Maldives has recognized that there has not been adequate provision given to waste awareness as well as the lack of leadership for waste management in the country. Thus they have stepped in to implement a national solid waste management policy as a means to demonstrate their responsibility to the environment and improve living conditions in the Maldives. The framework of the policy was formulated in 2007 with the assistance of United Nations Development Programme (UNDP) in an attempt to establish and activate waste management

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governance and infrastructure (United Nations Centre, 2013). UNDP also worked with the Government of Maldives to construct island waste management centres (IWMCs) in more than 50% of the islands.

Other Ongoing Efforts

With the vision to build on the initiatives that are already in place, additional initiatives are developed to ensure greater equity in access to waste management infrastructure and stronger administrative capacity across the Maldives (Environment Research Centre, 2008). The Government actively encourages a reduction in the amount of solid waste generation through approaches such as waste recycling and reuse where possible, influencing consumer preferences, and committing waste to landfill only as a last resort. This further places an emphasis on the overall awareness of waste management policies, where waste awareness programs are customized to involve and engage the community. To further address the issue of solid waste management at the regional level, The Maldives Environmental Management Project (MEMP) funded by the World Bank was initiated in 2009. This project pushes for a more stringent set of guidelines as to proper waste disposal in the region and targets both island and regional levels where it is committed to the construction and management of environmentally sustainable and economically viable waste management systems (Saleem, 2010). Today, waste incinerators and crushers are placed in all resorts in the Maldives, and these properties are to ensure that the selected waste disposal options are those that will provide the maximum environmental, economic and social benefit to the communities (RRC. AP, 2002). Presently with the strict compliance of standards and regulations in place, these forms

of initiatives are found to be more effective and have not generated any serious environmental impacts as compared to before.

Recommendations

Reduce, reuse, recycle, residual treatment, and residual disposal has always been on the hierarchy list for waste minimization. In order to work out a good solid waste management plan aimed at reducing the overall solid waste volume, waste minimization strategies have to be implemented to address all the relevant issues resorts may encounter in their daily operation. With this in mind, the strategies are to encompass the storing, collection, and disposal of the waste that is generated on site. Thus, the very first step resorts should undertake would be the evaluation of their waste management practices. First of all, the key issues identified in solid waste management are the increasing garbage generation, waste collection system, segregation of waste, scientific processing of waste material depending on nature, developing infrastructure for solid waste, its disposal and processing, as well as decentralize means to process waste to avoid multiple transfer and facilitate disposal (Kulkarni, 2008). All these derived to the second step which will involve setting priorities and taking immediate action. Other than ensuring that the solid waste produced is sorted into appropriate classifications prior to disposal, destinations will need to quantify waste volumes and identify sources in order to effectively manage it. To assess the solid waste volume, all resorts in Maldives should conduct a proper waste audit so as to find out what the waste actually consists of and the quantities of each type of material as well as how they will eventually be treated. Using this information generated, it helps to identify where reducing

waste at the source is going to be most practical and effective. It is also possible to target tourism activities offered by the resorts that contribute a significant amount of solid waste to the landfill. Such an assessment is helpful toward identifying environmentally viable alternatives to landfill for the waste that cannot be eliminated (World Tourism Organisation, 2004). While two practical steps have been introduced, the final one would be to continue making improvements and investments (PA Consulting Group, 2001). For instance, resorts should coordinate the services of waste collection and processing to adopt the practices of reduce, reuse and recycle. One example could be to reduce the quantities of materials consumed, taking into account the packaging, and to then consider reuse, or if not possible, recycle. Another strategy could be the substitution of less wasteful procedures such as serving in edible containers or using recyclable bottles.

Conclusion

Solid waste management is inevitably vital in the society and not just in the tourism sector. Effective and proper management of solid waste reduces or eliminates adverse impacts on the environment and human health, supporting economic development and improved quality of life. Being aware of the importance and dependence upon its natural environment, the Maldivian society has since learned to co-exist with nature by practicing various approaches to ensure long-term sustainability of its ecosystems. However, due to the rapid pace of development and increasing stress on its limited resources, solid waste pollution still poses a critical environmental concern that needs to be resolved in the country. That said, it is the intention

of the undertaking projects to deal with solid waste in an efficient, effective and sustainable manner, keeping the environment free of solid waste as much as possible. Additionally, the local authority plays an essential role in this regard, because without a national policy framework or any implementation strategy for solid waste management, the potential for improving environmental outcomes in the tourism sector would be limited. By improving upon its current initiatives, resorts in the Maldives would be able to foresee and achieve objectives as well as long-term benefits such as improved aesthetics and sanitation, protection from vermin infestations, and above all, increased guest satisfaction.

Appendices

Appendix A: Amount of Solid Waste Generated Daily in Malé

Amount of Solid Waste Generated Daily in Malé. jpgSource: RRC. AP. (2002, n. d.). Key Environmental Issues: Management of Solid Waste and Sewage. Retrieved March 22, 2013, from RRC. AP: http://www.rrcap.ait.asia/pub/soe/maldives_solid.pdf

Appendix B: Accommodation Type and Tourist Bed Capacity 2011

appendix b. jpgSource: Hassan, M. Z. (2012, May 3). Maldives Destination Development Strategies Towards Green Tourism. Retrieved March 30, 2013, from UNWTO: http://asiapacific.unwto.org/sites/all/files/pdf/maldives_0.pdf

Appendix C: Waste Composition in Malé

appendix c. jpgSource: United Nations Centre for Regional Development.

(2013, March). Country Analysis Paper - Maldives. Retrieved April 20, 2013,

from UNCRD: <http://www.uncrd.or.jp/env/spc/docs/130318Maldives.pdf>