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Leul Yohannes Hailemariam
Lecturer, Department of
Tourism Management,
University of Gondar,
Ethiopia.

Yechale Mehret Geremew
Lecturer, Department of
Tourism Management,
University of Gondar,
Ethiopia.

Environment sustainability of 'Tourist recommended hotels' in Gondar city, Ethiopia: A perspective of septic tank management

Leul Yohannes Hailemariam, Yechale Mehret Geremew

Abstract

These days, assuring environment sustainability through managing the very root causes of global warming, ozone depletion and natural resource degradation is becoming an urgent issue across the world. In this regard, emitting hazardous gasses, generating huge wastes and consuming excessive scarce resources such as water and energy, the hospitality and tourism industry could be responsible for global warming, ozone depletion and natural resource degradation unless properly managed. Hence, the objective of this research was to assess environment sustainability of 'Tourist Recommended Hotels' in Gondar City, Ethiopia, from the perspective of septic management. The research employed a cross sectional survey approach sourced from key informant interview, document consultation and observation check list. The Environmental Health Inspectors, Health Extension Workers, Sanitation Agent Experts, and Culture and Tourism Officers in Gondar city were purposely interviewed based on data saturation. The interpretation of data collected used a descriptive approach accompanied with descriptive statistics and theme based analysis. The research disclosed that 'Tourist Recommended Hotels' in Gondar City have poor septic tank management culture. Their septic tanks are poorly constructed, less frequently emptied, and irregularly maintained. Most of the hotels have the intention of discharging their septic tank to the storm water runoff ditches while some of them have practically connected their septic tanks to these ditches. So, attention should be towards awareness creation and law enforcement in order to protect further contamination and sanitation related community health problems.

Keywords: Tourist Recommended Hotels, Environment Sustainability of Hotels, Septic Tank Management, Waste Water Management, Liquid Waste Management, Gondar City-Ethiopia

1. Introduction

Gondar had been the imperial capital of Ethiopia for about 220 years, from 1640s to 1860s. The city had been political, commercial, cultural and religious centre of the country due to its strategic location to the coast of Red Sea and the then caravan trade route (Pankhurst, 1997). The glorious and historical city of Gondar is known for its astonishing castles of the medieval period in Ethiopian history. The city is located 2300 meter asl in the northern west part of Ethiopia, between Lake Tana and the Simien Mountains National park, at 12°35'53.8"N latitude and 37°27'38.7"E longitude. Accessible both by road and air transport, Gondar is 748 kilo meters far from the capital city Addis Ababa. Its climate is temperate with 1172 mm annual rain fall.

Hosting famous world heritage buildings (castles, palaces, churches, monastery and bridges), the colorful religious festivals such as Ethiopian Epiphany (Timket), Gondar has become one of the prominent destinations of the renowned 'Historic Route', Ethiopia. This in turn creates a fertile ground for the development of tourism business such as hotel. However, it should be taken in to consideration that the development of tourism business in Gondar city, like other destinations, can have both positive and negative impacts on culture, economy and environment (Tribe *et al.*, 2000) [8]. So, tourism business should be committed to implement environmental management initiatives, such as the conservation of resources and proper waste disposal as recommended by WTTC, WTO and Earth Council (1996) [9].

Being an important component of the tourism business, hotels must assure environmental sustainability in their day to day practices. Because poorly managed hotel operation could

Correspondence
Leul Yohannes Hailemariam
Lecturer, Department of
Tourism Management,
University of Gondar,
Ethiopia.

contribute for environmental degradation, global warming and ozone depletion (Eicker, 2003) ^[5]. As compared to individual households, hotels produce huge waste per person (Deng, 2003) ^[4]. They produce not only massive but also dangerous wastes contaminated with chemicals and infections micro organisms. Especially improper collection and treatment of liquid waste in septic tanks could contaminate and pollute the environment. For instance, Brandes (1977) ^[1] disclosed that a waste from septic tank has potential inorganic contaminants such as phosphorus, nitrogen, and chloride. Another study by Tim and Mostaghimi (1991) ^[7] confirmed that septic tank effluent contains high levels of contagious organisms such as bacteria and viruses that cause water born diseases like typhoid, hepatitis, cholera, diarrhea, meningitides, etc.

Therefore, to be environmentally sustainable, hotels must properly manage their septic tanks. Canter and Knox (1984) stated that managing septic tank is relatively easy as it needs less construction cost, minimal maintenance, low technology and less energy. However, septic tank is prone to failure improperly constructed, emptied and maintained (Yates, 1985) ^[10].

Hence, the objective of this study was to assess environment sustainability of 'Tourist Recommended Hotels' in Gondar City, Ethiopia, from the perspective of septic management. The need to undertake this study in Gondar city is due to a combination of contextual factors. Firstly, all of the 'Tourist Recommended Hotels' in Gondar city are using septic tank sewerage disposal system. Secondly, none of the above empirical evidences are from the socioeconomic context of Ethiopia rather from the socioeconomic context of the western world.

2. Methods

An exploratory study was conducted to decide the need for further study on septic tank management of 'Tourist Recommended Hotels' in Gondar city. Once the need for further study was decided, a cross sectional qualitative survey sourced from key informant interview, visual assessment, and document analysis was conducted in September-November, 2015. The Environmental Health Inspectors, Health Extension Workers, Sanitation Agent Experts, and Culture and Tourism officers were purposely interviewed based on data saturation principle. Visual assessment was conducted walking around hotels using observation checklist.

A pilot study was conducted to examine the validity and reliability of interview guideline items. First, interview was conducted on a randomly selected six interviewees to check clarity, relevance and ability of interview items to secure responses. This helped researchers to identify lists of overseen but important interview items. Then, including these overseen items the final version of the interview guideline was designed. The guideline was written in two languages: Amharic (the local language) and English. Paying special attention to communication between the data collector and the respondents, media of discussion was Amharic in which all respondents are familiar with. To ensure that the same meaning is retained, both the original version in Amharic and the translated version in English were proof read by experienced researchers who are familiar with Amharic and English languages.

Assuring the consent of the respondents, the data was collected from 23 key informants with a maximum care on

personal bias through data saturation approach. Notes were taken throughout the course of the interview in addition to recordings. As reliability refers to the research trustworthiness and conformability to assure the reliability (repeatability) of the data, all the interviews were transcribed word for word. Therefore, one could go back and recheck the answers or responses. Both telephone and face to face interviews were conducted.

The interpretation of the interview data used manual thematic analysis approach. In this case the interview results were repeatedly and thoroughly read so as to gain the major themes of each respondent. Utilization of summary data was employed. So, the processes of transcribing /interpreting from Amharic (local language) to English as well as identifying themes, coding and clustering was carried out. Then data were grouped into four themes: general profiles of hotels; status of hotels in sitting and construction of septic tank; status of hotels in emptying septic tank; and status of hotels in maintaining and inspecting septic tanks

3. Results

3.1. General Profile of 'Tourist Recommended Hotels'

According to data from the city Culture and Tourism Department, there were 30 'Tourist Recommended Hotels' in Gondar City in the year 2015. The department grouped hotels in to Tourist Recommended category based on two main basic criteria: service and market. Hence, 'Tourist Recommended hotels' are these hotels that are grouped in to the star rating system and may be grouped in the near future to the star rating system upon upgrading their services to the level of the required international standard. They provide basic services like parking, bedroom, catering, laundry and meeting room facilities as well as advanced facilities such as swimming pool, sporting, children playground, night club, etc. On the other hand, market for these hotels is closely related to the tourism industry as majority of consumers for these services are tourists.

3.2. Environmental Sustainability of 'Tourist recommended Hotels'

3.2.1. Sitting and Construction of Septic Tank

The collected data verified that majority of these hotels have septic tank sewerage system with two main construction related problems: cracked or non water proof septic tank walls and less aerobic soakways system. Respondents witnessed that these poorly constructed septic tank malfunctions when the ground water ingress and fill the septic tank. They also assured that some of the hotels have soakways constructed in non-aerobic soil layer. This has protected the septic tank system from treating the effluent via aerobic soil bacteria. So, respondents argued that regular problems such as over floating toilets, stinky odors and foul smells are resulted from the above construction issue. Observation data unveiled that some of these hotels, has discharged scum to rain water runoff ditches and rivers. This can pollute the environment with potential inorganic contaminants as stated by Brandes, (1977) ^[1] and with viruses and bacteria as stated by Tim and Mostaghimi (1991) ^[7]

3.2.2. Emptying Septic Tank

Dada disclosed that for these hotels to regularly empty their septic tank the city administration has to work hard to fulfill the need for sewerage vacuum truck and the sewerage dumping site facilities. However, majority of the respondents agreed that accessing vacuum truck facilities is very difficult.

This resulted in septic tank overflowing and malfunctioning. In addition, researchers witnessed that some of these hotels have connected their septic tank to ditches. The city is being polluted by annoying and foul smell across these ditches and sewerage canals.

3.2.3. Maintaining and Inspecting Septic Tanks

Data confirmed that these hotels gave less attention and priority for period maintenance and regular inspection of their septic tanks. According to respondents, sludge blockage is the frequently exhibited maintenance problem. It has been caused from two major sources: less emptying frequency and the presence of high ground water table in some part of the city. The less the emptying frequency of the septic tanks the more the accumulation of sludge in pipes. On the other hand, cracked and non water proof septic tanks allow water to ingress. This has facilitated the presence of floating sludge and blockage of pipe. Another, challenge that was repeatedly mentioned by respondents is ruining and reconstruction cost. Hence, these contexts motivated some of these hotels to discharge wastes illegally.

4. Conclusion

- ✓ A total of 30 'Tourist recommended Hotels' were registered the city Culture and Tourism Department in the year 2015.
- ✓ These hotels exhibit three main septic tank management problems: less attention for quality septic tank construction, failure to regularly empty the septic tank, and failure to inspect and maintain septic tank. This in turns causes sludge blockage and malfunction of the system. Floating toilets, ground water ingress, unpleasant odor are the most frequently reported troubles of septic tank management.
- ✓ Gondar city has no central sewer system to treat and collect waste water rather it dumps the waste in to open field dumping center through the help of vacuum truck facilities. Hence, huge volume of waste water from these hotels has been discharged untreated to the nearby ditches and seeped into ground water due to ignorant behavior of hoteliers, government bodies, and the local community. The poor capacity and inaccessibility of the vacuum truck facilities from the city municipal office also has augmented the problem.
- ✓ Majority of these hotels have intention to connect and some of them have connected their septic tanks to rain water drainage systems. This could result in sanitation related diseases such as hepatitis, cholera, diarrhea, meningitis, etc as majority of the city dwellers use river waters for washing and bathing purposes. Hence, unless proper measures taken by concerned body, the situation may further impact the community health through contaminating the water reservoirs, fattening and poultry farms, as well as the irrigation fields that are relied on these rivers for water supply.
- ✓ Collaboration among various stakeholders (the government, local community, hoteliers, etc) towards sustainable waste water management is poor. Hence, awareness creation to the general public and enforcement of law to offenders become difficult. So, establishing a regular stakeholder's discussion forum and awareness creation campaign could help empower the urban health extension workers and punish these offenders.

- ✓ This study discloses the status of these hotels from the perspective of waste water collection and treatment only. So, the further study on the actual impact of the illegally discharged waste water, from these hotels, on environment and community health should be conducted so as to capture the full picture of the problem.

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