Visitors’ Environment Awareness in the Maldives

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Abstract

Geotourism of the Maldives includes a great diversity of attractions such as the appealing atoll-and-reef ecosystems that uniquely characterize the Maldives island archipelago. Under a policy of nature conservation and preservation of their society’s socio-cultural identity, the Government of Maldives has developed (geo-) tourism exclusively on the principles of a “one hotel – one island” type of tourist habitation. All such tourist resort islands were converted from deserted and uninhabited islands and equipped with comprehensive facilities for overseas visitors’ ambitious demands for accommodation, board and leisure. These tiny islands constitute, by nature, fragile marine ecosystems and their fragility is exacerbated by (mass) tourist hospitation. The tourist resort islands accommodate up to several hundreds of tourists, who put great stress on the various atoll-and-reef ecosystems of the islands. As a consequence, heavy tourist visitation has caused disturbances to the ecosystems, though the Government of Maldives strongly controls tourism as a key national industry and aims for sustainable development.

Questionnaire surveys at two major resort islands have shown that visitors have a high degree of awareness of the fragility of the Maldives islands’ environment. Visitors also express their willingness to support environment-friendly tourism, underlining the visitors’ greatly developed concern for the environment. Moreover, visitors demonstrate acceptance of the government’s strict environmental rules and regulations for conserving the Maldives as a “natural paradise.” Environmental education may, however, be developed for an even more comprehensive awareness by the visitors of the fragile atoll-and-reef ecosystems of the Maldives.

Key words: atoll-and-reef ecosystem, environmental awareness, island geotourism, Maldives islands, tropical marine environment

1. Introduction

“Geotourism” comprises many different types of tourism, all of which take place in the natural environment (Dowling & Newsome, 2005). Geotourism’s focus of attention is on the geosite, which can be, among other things, an island or a group of islands, like the Maldives island archipelago, with no less than 92 tourist islands (as of 2008) developed by a sophisticated tourism industry exclusively for overseas visitors’ demand for accommodation, board and leisure. As the Maldives islands are characterized by an appealing tropical atoll- and-reef ecosystem, geotourism in the Maldives has an abundant diversity of attractions provided by the marine environment. At the same time, tropical atoll-and-reef ecosystems are particularly fragile, due to the forces of sea waves; additionally, heavy tourist visitation to such tropical ecosystems may cause further negative human disturbances. Such types of disturbances brought about by housing construction on tourist islands and recreational activities such as diving and snorkeling can even constitute a permanent (negative) impact on the ecosystem. How to avoid or minimize the adverse impact of geotourism on the environment is therefore a question of major concern to geotourism. As far as the Maldives’ marine environment is concerned, the archipelago is, by nature, characterized by micro-islands and their fragile ecosystem. For implementing environmental protection with particular consideration of tourists’ active participation, visitors’ awareness of the vulnerability of the Maldives’ environment will play a major role. The status of visitors’ knowledge was investigated by means of a questionnaire survey. This paper presents the results.

2. The Marine Ecosystem of the Maldives

Though blessed with a paradise-like living environment of atolls and reefs under sunny tropical skies, creating abundant biodiversity, the Maldives are a vulnerable marine ecosystem due to the extremely dis-
persed nature of this island archipelago. Located in the northern Indian Ocean, the Maldives consists of 1,302 islands with a total land area above sea level of only 298 km² out of a 90,000 km² total national territory. Categorized as a “small island developing state,” the Maldives is, as a nation, characterized by the vast extent of sea which occupies 99.97% of its total area, while only 0.03% of the nation’s area is occupied by islands with an average size of 0.5-1 km². The Maldives’ distinctive natural geographic feature is, therefore, defined by separateness, remoteness and “islandness.”

By structure, the Maldives comprises 24 coral atolls, each of which consists of a certain number of islands. The natural existence of each island is guaranteed by a ring reef, and hence each island is surrounded by a lagoon of smooth water. Each island consists of a weak structure of sand deposited on a coral rock foundation, and none of the islands measures more than two meters above sea level.

For administrative purposes, the Maldives territory is broken into 19 units which are commonly also called “atolls”, complemented by the capital Male’ as a separate unit. Male’ capital belongs structurally to the Kaafu atoll (Fig. 1).

As a Small Island Developing State, the Maldives has limited resources for economic development. Traditionally, the coastal and marine environments were associated with fisheries while agriculture played an insignificant role and is primarily associated with coconut production for the daily diet. Most of the people’s necessities are imported, including food, construction materials, consumer goods and petroleum products. Exploiting the attractive tropical atoll-and-reef nature, tourism has meanwhile become the Maldives’ key industry and leading source of income and employment. Government policies for future economic development of the Maldives also focus on tourism.

As the Maldives islands’ ecosystem is highly vulnerable by nature, particularly to wave forces, the impact of mass tourist traffic may negatively add to a greater vulnerability to human disturbances, particularly when it involves breaking the reef for harbour and jetty construction and/or tourists’ trampling on coral because of improper diving and snorkeling activities. Earlier, construction materials for houses were also mined from the reef, an activity which is now banned by government law. As tourism has robustly picked up in the Maldives, showing high year-to-year growth rates, tourism must be regarded as having a harmful impact on the marine ecosystem of the Maldives.

The Government of the Maldives has enacted many rules and regulations for environmental protection, including the Environment Protection and Preservation Act of the Maldives (1993), that states “the natural environment and its resources are a national heritage that needs to be protected and preserved for the benefit of future generations” (Paragraph 1). Any person (including tourists) breaking the law and spoiling the environment is subject to rigorous penalties from the Government of the Maldives, depending upon the seriousness of the offence. By law, breaking of coral for souvenirs is an offense and tourists are heavily fined for smuggling black coral and marine products of whatever type.

Taking into account the impact of global warming on the environment, in particular with regard to sea level rise, it is further important to question whether and to which extent the Maldives island archipelago is under threat from sea level rise and how much this is contributing to a greater vulnerability of the atoll-and-

![Map of the Maldives](image-url)  
**Fig. 1** Map of the Maldives, indicating the two tourist resort islands featured in this study (Male’: capital of the Maldives).
reef ecosystems. As a political issue, it is argued that, at worst, the Maldives islands may even be fully submerged by the sea in a few hundred years due to sea level rise as a consequence of global warming. Already in 1990, Maldivian activist Maniku (1990) predicted the “disappearance of little Maldives under the sea,” expressing the anxieties of many environmentalists about the future physical existence (or non-existence) of the Maldives islands. While for the last century the rise of the sea level was estimated at a magnitude of 10 to 20 cm as a global mean, a further sea level rise of 50 cm is conservatively predicted by the year 2100, with a tendency to continue for several subsequent centuries (WMO, 2000).

Sea level rise as a consequence of global warming is a serious concern in the Maldives, as Mr. Maumoon Abdul Gayoom, President of the Maldives, has expressed on many occasions, such as at the Opening Session of EU Development Day 2007, in Lisbon on November 7, 2007, when he said the following: “Earlier in 2007, the Maldives experienced tidal surges on nearly 80 islands. Never in our documented history have so many islands been simultaneously flooded over, and to such an extent. Moreover, our beaches are now eroding at a rate previously never witnessed. Recent surveys show that 119 of our 199 inhabited islands are suffering from the problems of beach erosion.”

Under the government’s order to preserve the environment in every respect, the Maldives’ tourism industry ultimately aims for fully sustainable development in the three dimensions of ecological, economic and socio-cultural.

3. Aim of This Paper

The present study aims to investigate the question of whether overseas visitors (tourists) to the Maldives are aware of the great vulnerability of their travel destination and to what extent they are individually willing to contribute to the protection of that environment. Visitors’ awareness of the environment was studied by means of questionnaire surveys of vacationers. The results, indicating respondents’ environmental awareness, are presented here.

In addition, this paper describes tourist resorts’ practices applied for environmental protection, particularly with reference to the relevant governmental rules.

Visitors’ environmental awareness was investigated at two leading tourist islands under the “one hotel – one island” resort type of tourist habitation characteristic to the Maldives tourism industry (see Chapter 5). The two tourist islands studied were:

1. Sun Island Resort (Fig. 2), which was converted from a former uninhabited, deserted island, Nalaguraidoo Island, to a tourist island, which opened in 1999 and ranks by area among the largest islands, measuring 1.6 km in length and up to 500 m in width. It has the largest accommodation capacity in the Maldives, with 852 beds, and is located in the Ari Atoll. Sun Island is 100 km off Male’ and the international airport.

2. Bandos Island Resort (Fig. 3), which is among the smaller resort islands, with an area of only a quarter square km, but has still a capacity of 450 beds. Located in the heavily tourist-congested Kaafu Atoll, only 8 km away from the international airport and capital island, Male’, Bandos is one of the two pioneer tourist resorts which opened back in 1972. Bandos has earned a high international reputation and is a pioneer resort for the Maldives tourism industry.

Questionnaire surveys of visitors’ environmental awareness were based on individual interviews. Responses given were carefully analyzed by SPSS statistical programs. Interviews on Sun Island were carried out by 24 students of Mainz University, Germany, under the supervision of the present author during a field campaign in the Maldives in September 2006. Interviews of tourists on Bandos Island were carried out by Gerbig in the course of her MA thesis (2004, unpublished). The total number of respondents on Sun Island was n=572, and on Bandos Island, n=391. The findings given in this paper are part of a major project on sustainable tourism in the Maldives by the present author.

4. Status of Research

Questionnaire surveying is a method widely applied in empirical statistics. Reliable results are obtained from
The research topic under study had not thus far been investigated; nor were any publications available at that time on the topic in question. Research on Maldives tourism had been, to a greater extent, carried out by the present author (Domroes, 1985; 1989; 1993; 1997; 1999; 2001; 2002a; 2002b; 2005), based on extensive field studies. He paid particular attention to the impact of tourism on the environment with reference to a tourism industry in the Maldives sustainable in its ecological, economic and socio-cultural dimensions. A few other case studies had enlightened some distinctive environmental aspects of Maldives tourism (Löffler, 2002, on tourist disturbances of coral reefs; Immelmann, 1996, on conditions for sustainable tourism management). Research on the Maldives must, from an overall perspective, be considered so far as rather scarce.

5. Tourism Development in the Maldives and the Concept of “Resort Islands”

Development of international tourism in the Maldives dates back to the 1970s based on the country’s genuine natural conditions for “exotic” (geo-) island tourism such as the physical remoteness, the favourable tropical climate and the appealing physical environment of the abundant atoll-and-reef ecosystems. These elements summon up a very inviting image of island life for tourists (Lockhart & Drakakis-Smith, 1996; Butler, 1997).

The Government of the Maldives strictly controls tourism and has clearly recognized (and adequately developed) the country’s rich resources for a flourishing tourism industry, saying: “The white sandy beaches, clear lagoons and beautiful coral reefs teaming with brilliantly coloured fish, and its warm and sunny climate for most of the year have high potential in tourism development” (Ministry of Planning and Environment, 1983).

Under such ideal conditions the Maldives’ uniqueness for island tourism has contributed to a rapid escalation of demand by up-market international tourism clientele. The Maldives tourism product has achieved the highest international reputation expressed by rapid growth in overseas visitor arrivals with a record-high figure for 2007 of 675,889 arrivals (Table 1). The major tourist-generating market is Europe, with a share of around 75%, predominantly from Great Britain, Italy and Germany. To cope with the enormous increase in tourist visitation to the Maldives, the government has attempted to strengthen environmental protection of the country’s fragile ecosystem.

Right from the commencement of tourism in the Maldives, the government strictly controlled all sectors of tourism, focusing on the concept of “resort islands.” This means that only a limited number of uninhabited islands have been commissioned and released to lessees, who must be of Maldivian nationality. The islands commissioned as resorts are contracted by the government for a limited period, initially 21 years and later on, 35. Lessees of resort islands are, at the same time, investors responsible for the total equipment of the resort and its physical and human infrastructure.

The number of tourist resorts has gradually increased to 92 (as of 2007). In 2008, 44 additional resort islands are to be leased out or are in various stages of development. There are further plans for another 19 uninhabited islands to be developed as resorts. Adding up all the resort islands developed so far and the resorts planned and under preparation, the total number of resort islands could reach 135 in the near future. Considering all locally inhabited Maldives islands (199 with 310,000 inhabitants as of 2008), the high percentage of uninhabited islands, accounting for 73% of the total, is still remarkable, amounting to 948 barren islands.

By strict order of the government, tourists can only be accommodated on resort islands and cannot spend their vacations on inhabited islands, and vice-versa. Maldivians shall not enter the resorts, which are reserved as domains for overseas tourists with their own life- and leisure styles. These resort islands can, therefore, be regarded as “gated communities.”

Under the “one hotel – one island” concept, in order to prepare for operation, a resort has to be constructed with a comprehensive infrastructure for accommodation, dining, sanitation and leisure, aiming to satisfy the tourists’ expectation for an “exotic” sun, sand and beach holiday, with ample leisure attractions provided by the marine environment. The extensive infrastructure requirements must include water and power supply as well as solid and liquid waste management, which means that the whole infrastructure of a resort is anthropogenic and to some extent “artificial.” The Maldives’ islands nature provides abundant sunshine and appealing deep, blue water, which contribute to a unique marine ecosystem with a great diversity of flora and fauna.

Obviously, the resort islands must also attend to the supply of all foods and provisions for the whole labour force, which, in practice, can only be achieved by hiring a large portion of expatriate labour. The Maldives itself is lacking a sufficient number of local labour staff for the tourism industry.

<table>
<thead>
<tr>
<th>Year</th>
<th>Tourist Arrivals</th>
<th>Number of Tourist Resort Islands</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>1,960</td>
<td>2</td>
</tr>
<tr>
<td>1975</td>
<td>9,013</td>
<td>8</td>
</tr>
<tr>
<td>1980</td>
<td>42,007</td>
<td>32</td>
</tr>
<tr>
<td>1985</td>
<td>114,554</td>
<td>55</td>
</tr>
<tr>
<td>1990</td>
<td>195,156</td>
<td>64</td>
</tr>
<tr>
<td>1995</td>
<td>314,869</td>
<td>71</td>
</tr>
<tr>
<td>2000</td>
<td>467,154</td>
<td>86</td>
</tr>
<tr>
<td>2005</td>
<td>395,320</td>
<td>87</td>
</tr>
<tr>
<td>2007</td>
<td>675,889</td>
<td>92</td>
</tr>
</tbody>
</table>

Table 1 Development of tourism in the Maldives, by number of arrivals and number of tourist resort islands (as per 31 December).
The resort islands must, by government law, apply a great number of measures for environmental protection in order to achieve sustainable development of the tourism industry in the Maldives, as described below.

6. Governmental Regulations for Environmental Protection of Maldives Resort Islands

The tourism industry in the Maldives shall in no way interfere with the Maldivians’ traditional lifestyle. To protect the islanders’ human and socio-cultural environment, the resort islands should not be visible from the local inhabited islands. Selected from the standpoint of their separateness and isolation in space, only a ratio of one out of three uninhabited islands were, at best, to be developed as resort islands. To protect the natural environment, a resort island’s number of tourists is limited by the requirement that the maximum built-up area can be only 20% of the total land surface, regardless of the type of construction. In other words, 80% of the extent of a resort island must be kept as open space. Guest accommodations must face the shore and a minimum of five meters of beach length shall be allocated to each accommodation unit. In total, a maximum of two thirds of the beach length can be allocated to tourist accommodations. In managing the protection of the natural environment, construction of resort islands must save all indigenous vegetation. Disruption of the marine ecology and changing the lagoon shape are also not allowed (Domroes, 2001).

The Government of the Maldives has also introduced certain standards for environment-friendly operation of the resort islands, such as (1) the coral and reef structure must not be destroyed by mining, (2) all coastal works, such as jetties and groins, must be strictly controlled, (3) the original flow of currents must not be altered by the construction of piers and jetties, (4) all resorts must have incinerators, bottle crushers and compactors, and (5) sewage disposal through soak pits into the aquifer is discouraged (Domroes, 2001). Finally, architectural designs must preserve the natural aesthetics of the resort island. The height of buildings is restricted to the height of an adult coconut tree. Buildings should have a maximum of two storeys, and the use of local building materials is encouraged.

On resort islands, tourists are advised to follow the guidelines for environmental protection; for example, to save water and energy and refrain from breaking coral. To raise the visitors’ awareness of the vulnerability of the Maldives’ marine environments and ecosystems, many resort islands provide information leaflets and brochures, and even classes and seminars on the vulnerability of reefs and coral are offered by resort islands.

As an attentively applied measure towards a friendly environment, all resort islands follow beautification programs (and employ a large garden staff) by planting greenery and flowers for decorative and recreational purposes.

With the objective of providing a hygienic environment, each resort island must carefully treat its waste. Solid waste and garbage are collected in trash dumps, while wastewater is treated in a sewage plant. To protect the resort islands from disagreeable insects (mosquitoes etc.), they are fumigated upon demand.

7. Environmental Protection on a Tourist Resort Island: the Case of Sun Island Resort

Sun Island Resort applies a most comprehensive and nature-friendly environmental management in many respects. Typical of all Maldivian resorts, Sun Island Resort is also surrounded by a smooth lagoon and a reef which forms a fascinating tropical marine ecosystem (Fig. 2).

The nature on Sun Island is presented in an impressive way, with an attractive orchard of coconut trees and breathtaking beaches fringing the island on all sides. The tropical climate on Sun Island provides a bright, sunny clime that contributes to the highly appealing character of Sun Island, and it distinctly attracts overseas (non-tropic) tourists to the resort.

Because its climate is so exotic to its international tourist clientele, Sun Island truly justifies its promotional slogan, “Sun Island – really a dream.”

To satisfy vacationers’ expectations for an environment fully in harmony with nature, Sun Island pays the utmost attention to creating a friendly environment. In this respect, many measures are firmly applied (Figs. 4-8), including:

(i) Separation of aluminum, glass, paper and cartons, PET and other recyclables, as well as composting of organic wastes from kitchen and gardening activities. For recycling purposes, PET is shredded, metal cans are compacted and bottles are crushed.

(ii) Waste water management and sewerage accomplished in a micro-treatment plant, deploying modern technologies and treatment methodologies, including re-use of treated water on the resort for irrigation purposes.

(iii) Efficient energy management aiming at reducing energy consumption at the resort, including use of energy-saving lights and a master-card system in all bungalows to ensure that no energy is wasted whenever patrons are out of their rooms.

(iv) Production of fresh water through reverse osmosis desalination.

(v) Beach cleaning by sweeping up coral debris and waste washed ashore every day.

(vi) Installation of solar water heaters on the rooftop of each bungalow. Rainwater is collected in hygienic cisterns for various uses. No water is taken from underground anymore, as is traditionally done in the Maldives.

(vii) Regular pest control and hygienic sanitation using modern technologies.

(viii) Recreational landscaping (including golf courses, tennis courts and other sports grounds) and ample...
public green furnished by ornamental plants and flowers in addition to the resort’s own agricultural plantation of thriving coconut palms, bananas, papayas, pumpkins and watermelons. Compost from the resort is used as organic manure so as to minimize usage of chemical fertilizer.

To maintain a higher degree of environmentally friendly management, a trained Environment and Landscape Manager is employed at Sun Island, who supervises a capable staff engaged in regular beautification activities for the resort’s open spaces. Recognized for the excellent performance of environmental friendliness and hospitality, Sun Island was twice awarded the Maldives’ President’s prestigious “Green Award” (in 1999 and 2004).
To further increase visitors’ environmental awareness, Sun Island has placed information boards demonstrating the unique wealth of the atoll-and-reef ecosystem and instructing visitors about the risk of reef damage by tourists trampling on the coral or breaking the coral for souvenirs, which is heavily fined as a serious offense. In order to promote a greater understanding of the fragile environment, Sun Island also encourages the tourists to contribute personally towards environmental protection by reducing energy and water consumption and not requiring new linen or towels every day.

8. Case Studies of Visitors’ Environmental Awareness

8.1 The case of Sun Island Resort

Our survey of visitor awareness at Sun Island Resort included 645 tourists. German and British tourists accounted for about three quarters of the respondents (47.2% and 26.9%, respectively), followed by a small number from other European countries. The length of the tourists’ vacations was mostly between one and two weeks, with smaller numbers staying less than one week or more than two weeks. By age, about two thirds of the respondents (n=645) were between 21 and 35 years old. Gender-wise, men and women visited Sun Island in nearly equal numbers. The tourists’ expectation of the Maldives as a “natural paradise” was seen in the domination of nature-bound leisure activities, such as diving/snorkeling, sunbathing, “hanging out” by the beach or simply doing nothing, coincidental to the official Maldives tourism promotional slogan of “the art of doing nothing.”

The questionnaire survey at Sun Island revealed that the tourists had a well-developed environmental awareness. Around a quarter of the respondents gave priority to garbage treatment (27.9%) and fresh-water generation (25.6%) as the two biggest environmental challenges, followed by waste-water treatment (18.0%) and coral die-off (15.2%). They considered other environmental issues to be of only minor relevance in the Maldives (Fig. 9).

A large majority of tourists to the Maldives are, as an expression of their great environmental concern, individually participating in environmental protection. A large number of respondents (572, 88.7%) stated that they were personally engaged in environmental protection measures, while only 73 respondents (11.3%) said they were not. They paid environmental attention mostly to garbage collection (33.3%), reduction of water usage (27.4%) and use of the same towels for more than one day (19.2%). They paid less attention to protection of coral (9.6%), energy saving (6.7%) and disposal of PET and other non-organic materials to take home for recycling (5.9%). In all cases, there were no major differences between male and female vacationers (Fig. 10).

Visitor awareness of the fragile environment of the Maldives was also encouraged by promotion of protective measures posted at various locations on Sun Island, such as inside the bungalows, at open sites in the lobby, as well as by leaflets and screenings on the TVs in the bungalows. A slight majority of respondents (53.4%) was satisfied with the information given on the sensitive environment and its vulnerability to carelessness if insufficient attention is paid to the environment.

Fig. 9 Visitors’ opinions of environmental issues in the Maldives (according to the results of a questionnaire survey at Sun Island Resort, n=645, shown by gender).

Fig. 10 Visitor participation in environmental protection in the Maldives (according to questionnaire survey at Sun Island Resort, n=645, shown by gender).

Fig. 11 Visitor satisfaction with information on environmental protection in the Maldives (according to questionnaire survey at Sun Island Resort, n=645, shown by gender).
of the respondents were below 45 years. Among their leisure activities, snorkeling and diving ranked at the top (60.1% and 31.7%, respectively). Such high percentages underlined the tourists’ main expectation of the Maldives as a “natural paradise” (55.5%).

Gerbig’s study showed that environmental friendliness and environment protection played a leading role in attracting tourists to the Maldives: 80.6% of the respondents (n=391) considered environmental protection “very important.” The majority of the tourists (74.9%) were even willing to carry home their empty tubes of sun lotion and toothpaste. Most tourists (83.1%) were also willing to reduce their water consumption and, at the same time, a large percentage of tourists (68.3%) indicated they would use the same towels and bed linen for more than one day.

As an expression of their major environmental concern when vacationing in the Maldives, 84.7% of the respondents promised to switch off the light when leaving their bungalows. The majority of the tourists, however, would not turn off their bungalow’s air conditioners.

The tourists clearly showed a well-developed knowledge of the great vulnerability of the Maldives ecosystem, with 78.3% of the respondents considering the coral at risk of being damaged by careless tourists who might trample it, being unaware of its unique ecological value. The tourists, however, did not show a superior scientific environmental approach focused on the Maldives as an ecosystem, as 38.9% of the respondents had no specific understanding of an “ecosystem” and 33.0% knew nothing at all about an ecosystem. Only 28.1% expressed some vague degree of understanding of the functional coherence of an ecosystem.

Though Gerbig’s study showed that tourists’ environmental concern had not fully developed, Bandos Island had adequately applied a wide range of measures for safeguarding the environment by (i) providing public information about the great vulnerability of Maldivian nature and (ii) enforcing the government’s environmental “law and order” measures.

Such measures refer to the construction and maintenance of physical resort infrastructure under compliance with the government’s conditions, including generation of the resort’s own electrical power and provision of fresh water on Bandos Island by having a power house and desalination plant, respectively. Effective treatment of solid waste and garbage is accomplished with an incinerator, bottle crusher and a compactor. Waste water is biologically treated in a sewage plant. To achieve maximum hygienic standards, the beaches and footpaths are swept daily and pest control is applied, particularly to control insects. Bandos Island absolutely guarantees maximum hygienic standards, the beaches and footpaths are swept daily and pest control is applied, particularly to control insects. Bandos Island absolutely guarantees the highest water quality standard, and kitchen and food hygiene rank top. Tourists are also encouraged to save water and energy, and leaflets are distributed explaining sensible treatment of the highly vulnerable atoll- and reef environment. Going a step beyond government mandates, Bandos Island provides hot water by solar
Taking into consideration all the environmental measures in effect on Bandos Island, the resort aims to achieve a sustainable physical resort management and development.

9. Discussion and Conclusion

The Maldives is, by nature, a fragile atoll-and-reef ecosystem. Tourism must therefore pay serious attention to preserving the environment by applying strategies for a sustainable tourism industry, which conserves nature in full harmony with man. The Government of Maldives has set up tight policies for environmental protection by introducing the “one hotel – one island” concept of island tourism, declaring sustainability the utmost goal of its tourism industry. Tourist resort islands have been established on formerly deserted, uninhabited islands, exclusively converted to foreign tourist “enclaves” away from the locally inhabited islands. Such resort islands are, hence, a most distinctive and unique element of the Maldives tourism industry. Each tourist resort is a self-catering establishment, taking care to organize its management well with regard to the supply and demand of all necessary goods for its up-market clientele’s well-being, on the one hand, and the management of waste and debris of all kinds, on the other. As visitors are confined to specific tourist resorts, the local communities’ culture and lifestyle are not harmfully affected by tourist visitation. Though they are sustainable in socio-cultural respects, these tourist resorts do not authentically express Maldivian culture or lifestyles, and represent a type of “gated community” (Domroes, 2005).

Tourists have a widely developed awareness of the fragile nature of the Maldives atoll-and-reef ecosystems, as demonstrated by respondents on the questionnaire surveys at both island resorts under study. The number of respondents (645 and 391 overseas tourists, respectively) can be regarded to be sufficient and representative. Visitors are also most willing and ready to participate in environmental protection and pay respect responsibly for an unspoilt environment. This willingness is expressed in the visitors’ consent to reuse bathroom towels for more than one day. As an overall result, tourists in the Maldives can be considered highly concerned for the environment, with appreciation for the measures implemented by the tourist resorts to follow the strict environmental rules and regulations enacted by the Government of the Maldives. The government strictly administers a nature-oriented environmental policy. Each resort must also manage to safeguard its environment, in addition to providing well-functioning infrastructure for traffic and transport to and from the resort.

Overseas tourists well appreciate the aesthetics and beautification provided by the tourist resorts. The tourists’ image of the sophisticated Maldives tourism industry is that of beauty and harmony with nature, underlining the reputation among overseas vacationers of the Maldives as a “natural paradise.” Though visitors are well aware of the vulnerability of the Maldives’ atoll-and-reef ecosystems, efforts to educate visitors toward a comprehensive consciousness of the fragile marine environment must be strengthened. Tourist resort islands must provide more precise instruction to the visitors (by leaflets, brochures and other documentation materials) about the unique and rare wealth of the atoll-and-reef ecosystems of the Maldives and the urgent need for their unconditional, sustainable protection, associated with the resort islands’ own strictest measures for environmental protection (e.g., through rainwater collection and alternative methods of power generation and modern energy-saving technologies).

Visitors’ participation in environmental protection at tourist resorts must also contribute to sustainable development of the tourism industry. Sustainability has, in its widest sense, recently become the ultimate goal of tourism under a global change scenario (Murphy & Price, 2005), as is also noted by the UN World Tourism Organization (2005). The enormous expansion of the tourism industry in the Maldives projected by the Third Tourism Master Plan, 2007-2011 (MTCA, 2007), must therefore pay prime attention to sustainable development.

The urgent need for visitors to strengthen their environmental awareness is even more in demand as the rate of sea level rise is predicted to accelerate in the present century subsequent to the rapid increase in global warming (IPCC, 2007). As a consequence of rising sea levels, the Maldives island archipelago is, by its very nature as a chain of micro-islands, necessarily threatened by the greater vulnerability and fragility of its environment. As tourist visitation to the Maldives is projected to increase heavily in the future, environmental protection must take the prime and utmost priority for achieving a future sustainable environment in the Maldives.

10. Summary

The questionnaire surveys carried out on two major tourist resort islands of the Maldives have clearly demonstrated overseas tourists’ well developed awareness of the fragility of the atoll-and-reef ecosystem that represents the unique tourism attraction of the Maldives. Visitors also expressed their willingness to contribute actively to environmental protection. The “one hotel – one island” type of tourist resort islands distinctively developed by the Maldives tourism industry has been shown to contribute successfully to environmental protection as well. Sea level rise as a consequence of global warming is the most crucial environmental threat to the Maldives, and tourism should, in no instance, add to environmental degradation through over-visititation and over-exploitation of the fragile atoll-and-reef ecosystem. Instead, visitors must, through their own volition, consciousness and sense of responsibility, participate in whatever environmental protection measures
are in force. The questionnaire surveys referred to herein have given evidence of visitors’ willingness to actively participate in environmental protection. Sea level rise, however, will remain the most serious environmental threat to the Maldives. If the predicted rapid increase in sea levels comes to pass, the Maldives nation will be swamped by the ocean. When Maldivian (Ex-) President Maumoon Abdul Gayoom (see Note 1) described his country as “a nation in peril,” he was aiming to draw the attention of global society and particularly western countries to the necessity to combat global warming, which causes sea levels to rise, and “to initiate global action that would save the Maldives from becoming environmental victims of the rising oceans” (Gayoom, 1998).

The present study has clearly indicated that geotourism, related to the specific type of “island tourism” (as applicable to the Maldives) must focus on sustainable development and sustainable exploitation of the given resources. Under such conditions, geotourism in the Maldives can be developed as “ecotourism” incorporating the visitors’ active participation in environmental protection based on their given environmental awareness, the reality of which was demonstrated decisively by the present study.

Note
1. Mr. Gayoom’s presidency ended on November 11, 2008.

References


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Dr. Manfred DOMROES is a Professor Emeritus of Geography/Geosciences at the University of Mainz, Germany. During his more than 40 years academic career he has substantially studied the ecosystems in tropical and subtropical countries of the Asia and Pacific regions paying particular concern on South-, Southeast- and East Asia where he has been assigned to countless research projects on sustainable terrestrial and marine ecosystems. He was chairman of the Commission of Climatology, International Geographical Union, 1992-1996, and has published many articles and books, including The Climate of China (in collaboration with G. Peng). He was awarded a Honorary Doctor of Sciences of the University of Peradeniya, Sri Lanka, and was appointed as a Honorary Professor of the Chinese Academy of Sciences, Beijing, and as a Guest Professor at the Fujian Normal University, Fuzhou, China.

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