

# Sustainable Coastal Tourism: Problems and Management Options

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## Abstract

About 30% of the world's tourism is on the coast or within the coastal zone and in addition the economy of that area depends on the coastal tourism besides their other profession like fisheries, agriculture and so on. The reality of economic gains from coastal tourism is established and the most real thing is the financial investment and profit. The importance of coastal environmental components to support sustainable coastal tourism is still ignored. The resulting impact on coastal communities along with their physical, socio-economic and cultural environment has to be managed efficiently to achieve sustainable coastal tourism.

**Keywords:** Coastal tourism, Environmental impact, Sustainable tourism

## 1. Introduction

Tourism has become one of the most important industries on a global scale and expected to grow 100% over the next 10 years and contributed around 10% of the total global Gross Domestic Product (GDP) by 2006 (World Travel & Tourism Council, 2006). This will increase to 10.9% by the year 2016 with a potential of more than 270 million jobs (Burke and Kura *et al.*, 2001).

The increasing tourist demand for more responsible and environment friendly options is the focus today (Dobson, 2003; Garrod and Wilson, 2003; Mycoo, 2006; Sharpley, 2006, 2009). Coastal tourism is becoming more harmful for the fragile natural and cultural areas, as those areas are mostly preferred by the tourists (Gill and Fennell *et al.*, 2003; Kline, 2001; Briguglio and Briguglio, 2000; Secretariat of the Convention on Biological Diversity, 2004; UNEP Division of Technology, Industry, and Economics, 2006 UN Atlas of the Ocean, 2004).

## 2. Problems of Coastal Tourism

The impact of coastal tourism is manifold and delicate for the coastal community and their livelihood. The negative impacts on the coastal environments are resulted from the tremendous pressure on limited local resources, increased or unwanted invasion of natural areas and serious conflict between tourism and other sectors (Garrod and Wilson, 2003; Dobson, 2003; UN Atlas of the Oceans, 2004).

The impact on water, food and energy resources are extreme as they are primarily for personal consumption and are heavily abused by tourists in hotel and food plaza along with excessive lighting and air cooling systems, swimming pools, golf courses, etc. (Gössling, 2002; UN Atlas of the Oceans, 2004). Local fish stocks can become severely threatened by tourists who wish to indulge on local cuisine, resulting market competition with the local community (UN Atlas of the Oceans, 2004). Water resource is certainly degraded qualitatively by pollution and quantity wise through over withdrawal and abuse. Often, the local sewage infrastructure has no such capacity to bear with the tourist population, particularly during the peak season for the tourists, and on the other hand it is also directly affected by cruise tourism producing an increased amount of waste and other pollutants (Burke and Kura *et al.*, 2001; UN Atlas of the Oceans). Even widely campaigned so-called 'eco-cruises' are environmentally destructive as they entering into the highly sensitive ecological niche. Water pollution, through time, produce eutrophic conditions and algal blooms, changes in salinity and siltation patterns, posing threats to plant and animal health, and undesirable aesthetics (Gössling, 2002; UN Atlas of the Oceans, 2004).

Land degradation and land-use change, results habitat and biodiversity loss, directly from the construction of tourist facilities and infrastructure through the clearing of mangroves, wetlands, and beaches, and the extraction of building materials (UN Atlas of the Oceans, 2004) or due to increased intrusion in the sensitive coastal ecology. A noteworthy example is the decreases in sea turtle nesting directly related to an increase of tourist flow along the nesting beaches (Schroeder, 2001).

In case of beach or shoreline tourism development, like construction of ports and resorts on the beach, the destruction of natural barriers and changes to sediment flow patterns, accentuates coastal erosion (UN Atlas of the Oceans, 2004). Unregulated and uncontrolled tourism construction is always primarily responsible for the destruction of aesthetic value of physical beauty of the coast and it always has a tendency to move closer to the water mark to create more attraction for tourists. Diving or snorkeling or engaging in other water-based activities are always responsible for coastal ecosystem and biodiversity loss, when tourists make their access to sensitive areas (Burke and Kura *et al.*, 2001; Gössling, 2002; UN Atlas of the Oceans, 2004).

Tourism development with an increase in air travel for more convenience and mobility contributes to an increase in global carbon dioxide emissions and climate change resulting in sea-level rise and the loss of popular beaches like Maldives, Mauritius and Caribbean. Also, increased ground and water transportation can lead to severe local air pollution and acid rain has negative impact on health and environment (Gössling, 2002; UN Atlas of the Oceans, 2004). Noise pollution is another important result of increased air, ground, and water traffic that can lead to hearing problems and even deafness (UN Atlas of the Oceans, 2004).

The financial investors are generally the people outside the region, who are not only physically, also socially far removed from the area. By default, they are very much interested in profits, not concern for the local development or degradation of quality of life an environment. The absence in equity in benefits within the local community may sometimes result in financial losses and increased local poverty (Kilne, 2001; UN Atlas of the Oceans, 2004; UNEP Division of Technology, Industry, and Economics, 2006). Thus, uncontrolled tourism development is a catalyst for environmental damage, and repair can cost local populations and government more than they would really gain from that industry (Kilne, 2001; UNEP Division of Technology, Industry, and Economics, 2006).

The global trend and reality is that tourism investors and developers create pressure on government to spend public money on improving infrastructure and services essential for the industry, promotion campaigns, including tax breaks and other financial incentives (UNEP Division of Technology, Industry, and Economics, 2006). Its true that the coastal tourism may result an increase in employment opportunities and that can be an economic benefit, even attracting job seekers from outside the local community. But in lean seasons and other tourism crisis can see mass scale unemployment leading to social consequences (UNEP Division of Technology, Industry and Economics, 2006).

During tourism development the supply and demand concept will force the cost of basic products and services and real estate to increase rendering them inaccessible to the local population resulting an increase in the cost of living (UNEP Division of Technology, Industry, and Economics, 2006).

Influx of tourists can always alter the traditional culture of the local community to render vulnerable changes, posing risk to the loss of a community's structure and indigenous identity, intracommunity conflicts between generations, genders, races, and classes, and can make local resources inaccessible to the native population (UN Atlas of the Oceans, 2004).

### **3. The Challenges of Coastal Tourism**

At the moment, the greatest challenge of coastal tourism is to prepare, participate and implement an effort for integrating the needs of all level of coastal zone stakeholders in a sustainable management plan considering the environmental, socio-economic, and cultural dimensions (European Commission Tourism Unit, 2000; Garrod and Wilson, 2003; Kline, 2001; UNEP Division of Technology, Industry, and Economics, 2006). Coastal stakeholders include the local community (including the people engaged in non-tourism coastal practices like fishing, aquaculture and agriculture or any other occupation), tourists, coastal tourism labour force, local and foreign investors and developers, government and non-government organisations (Björk, 2000; Gill and Fennell *et al.*, 2003; Secretariat of the Convention on Biological Diversity, 2004). The alarming point of caution in this regard is that in most of the time, short-term gains often take priority over long-term sustainability (Secretariat of the Convention on Biological Diversity, 2004).

### **4. Strategy for Sustainable Coastal Tourism**

A sustainable strategy is necessary to formulate a sustainable coastal tourism management plan for mitigating the process of degradation of coastal community considering the physical environment, local economy and culture, and must include the local industries not related to the coastal tourism (Burke and Kura *et al.*, 2001; Dobson, 2003; Garrod and Wilson, 2003; Kline, 2001; Secretariat of the Convention on Biological Diversity, 2004; Yunis, 2006). There should be a holistic policy for sustainable development involving policy and decision makers, and developers and managers from GOs, NGOs, and other organisations, the private sector, and the local and native communities during formulation of a tourism development plan. There must be a balance between conservation

and people, addressing the demand of the local community for easy access to necessary services and ability to manage their own natural resources, ensuring their livelihood and fair distribution of profit and resources including intercultural tolerance (Björk, 2000; Dobson, 2003; Garrod and Wilson, 2003; Kline, 2001; Secretariat of the Convention on Biological Diversity, 2004; UNEP Division of Technology, Industry, and Economics, 2003; Yunis, 2006). Eventually, sustainable tourism is certainly a balance between the tourism industry and the local community to protect the destruction of assets on which the coastal tourism is really dependant (Burke and Kura *et al.*, 2001; Dobson, 2003; Garrod and Wilson, 2003).

### **5. Ecotourism and the Tourism Carrying Capacity**

Ecotourism is a concept that falls within the ever-demanding sustainable coastal tourism (Garrod and Wilson, 2003; UNEP Division of Technology, Industry and Economics, 2003). It is based on natural resources and recognised as not hampering the fragile physical environment as well as improve the livelihood of the local population (Garrod and Wilson, 2003; Kline, 2001; Lee and Mocardo, 2005; Sharpley, 2006, 2009; UNEP Division of Technology, Industry and Economics, 2003). It is assumed that theoretically ecotourism provides positive outcome for the community by minimizing impact of tourism, through environmental and cultural respect, providing financial benefits to the local population with necessary financial input for conservation and restoration activities (Figure 1) (Dobson, 2003; Garrod and Wilson, 2003; European Commission Tourism Unit, 2000; Garrod and Wilson, 2003; Lee and Mocardo, 2005; UNEP Division of Technology, Industry and Economics, 2003; Wheat, 2004). Some important tools essential for successful ecotourism include impact assessments before the development of an activity, product, or service, auditing of key variables to ensure sustainability, and establishing a tourism carrying capacity (European Commission Tourism Unit, 2000; Garrod and Wilson, 2003; UN Atlas of the Oceans, 2004).

The tourism carrying capacity of a tourist destination is a concept that is necessary for a sustainable tourism industry and is a tool which is vital to ecotourism. A community's tourism carrying capacity defines the upper limit to an acceptable tourist population within which sustainability is maintained. Beyond this, resources are over-exploited, infrastructure is stressed, and the future of the community is at risk (Burke and Kura *et al.*, 2001; Garrod and Wilson, 2003)

Calculating the tourism carrying capacity can be the most difficult task in developing a sustainable coastal tourism industry. The following are examples of factors that influence the tourism carrying capacity: congestion in key tourist areas; loss of natural coastal resources, coastal ecosystem functions, and biodiversity; the functional capacity of transportation and communication infrastructure, utilities, and other support services; effect on community structure and cultural identity; community access to coastal resources and services; availability of labour; economic benefits distribution; and potential decline in tourist experience and expenditure (Burke and Kura *et al.*, 2001; Garrod and Wilson, 2003). The successful, yet delicate, balance of these factors and monitoring of key variables will result in the long-term sustainability of a coastal tourism industry whose benefits are great and numerous (European Commission Tourism Unit, 2000; Garrod and Wilson, 2003).

### **6. Socio-Economy**

A truly sustainable coastal tourism industry will see economic benefits maintained through time. A more fair and efficient local distribution of profits and an influx of foreign currency will create employment and investment opportunities in both tourism and supply businesses, and will alleviate poverty (UN Atlas of the Oceans, 2004; UNEP Division of Technology, Industry, and Economics, 2006). Decreased costs because of damage and expensive mistakes from an unregulated industry, and increased local and national government revenues through taxes on tourism-related employment and goods and services will stimulate investment in infrastructure and services further contributing to employment and stimulating tourism. Government investments will increase the overall standards of living for the local community (UN Atlas of the Oceans, 2004; UNEP Division of Technology, Industry, and Economics, 2006).

Increased employment opportunities and infrastructure development will reduce emigration, and increase tourism-related professional development and training of important business skills as well as increase literacy within the community (UN Atlas of the Oceans, 2004; UNEP Division of Technology, Industry, and Economics, 2006).

### **7. Physical Environment**

Sustainable tourism can contribute to environmental protection and restoration of biological and ecosystem diversity through the sustainable use of natural resources and increased designation of protected areas and wildlife refuges (UNEP Division of Technology, Industry, and Economics, 2006; Yunis, 2006). Government revenues from the industry and user and entrance fees collected can certainly be invested in environmental

programmes and the development of environmentally-friendly technology to ensure the environment's long-term sustainability which is a lure for tourists (UNEP Division of Technology, Industry, and Economics, 2006).

Educating the local population about the attraction of tourists to natural environments, and thus the economic value of ecosystem products and services, will encourage community-based sustainable management of the environment as the locals will have financial incentives to protect their natural resources (Björk, 2000; Kline, 2001; Sharpley, 2006; UNEP Division of Technology, Industry, and Economics, 2006; Yunis, 2006). Also, educating the tourists about the natural landscapes they enjoy and the risks from tourism will make them aware of the choices they have when planning activities, accommodation, meals, and other elements of their stay (Björk, 2000; Sharpley, 2006).

## 8. Culture

The educational element of sustainable tourism is significant for a community's culture. Interactions between the cultures of tourists and those of the local community are an opportunity for cultural exchanges that will promote understanding and reduce intolerance and prejudice. As a result, tourism can conserve, re-establish, and strengthen cultural traditions, heritage, and native art forms (UN Atlas of the Oceans, 2004; UNEP Division of Technology, Industry, and Economics, 2006; Yunis, 2006; Spenceley, 2008).

## 9. Major Global Initiatives

There are several international conventions that affect the coastal tourism industry in an effort to make it a more sustainable venture. Some major ones include the United Nations Convention on the Law of the Sea (UNCLOS 1982), Agenda 21, Convention on Biological Diversity (CBD), Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention), and, of particular interest to the cruise ship industry, the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). Others include conventions concerning climate change and other aspects of pollution (UBC Fisheries Centre, 2004). However, these agreements are only as affective as the signatories' abilities to ratify and enforce them, as there is often a gap between theory and practice (Garrod and Wilson, 2003). Also, Global Sustainable Tourism Criteria (GSTC) of 2009 is indicating some major issues on sustainable coastal tourism.

CBD, adopted at the Earth Summit in Rio de Janeiro, Brazil in 1992, outlines specific guidelines to establish a sustainable tourism industry. The overall goals of the convention are conservation of biodiversity, sustainable use of its components, and fair and equitable sharing of benefits arising from genetic resources (Secretariat of the Convention on Biological Diversity, 2004; UBC Fisheries Centre, 2004). The guidelines for sustainable tourism were adopted during the seventh meeting of the Conference of the Parties to the Convention on Biological Diversity in Kuala Lumpur, Malaysia in 2004. It covers policymaking, development planning, and management processes, proposal process and information requirements, and education, capacity-building, and awareness-raising as a tool for policy and decision makers and managers in a multi-stakeholder process for developing a sustainable tourism industry (Secretariat of the Convention on Biological Diversity, 2004).

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Table 1. Impact of coastal tourism on natural environment to coastal communities and appropriate responses (After Garrod and Wilson, 2003)

Components	Activity	Effect on coastal environments	Corrective measures
Water	Withdrawal of groundwater from aquifers and modify/divert natural flows to supply for recreation and/or tourist facilities	<ul style="list-style-type: none"> <li>• Problems in drainage system and probable wetland loss</li> <li>• Salinity change and siltation problems in aquifers</li> <li>• Soil compaction and probable subsidence</li> <li>• Certain changes in the ecological communities</li> </ul>	<ul style="list-style-type: none"> <li>• Strict prohibition of such activities destined to drain the wetland</li> <li>• Sustainable exploitation of groundwater after specific water budgeting</li> <li>• Possible restoration measures</li> </ul>
	Creating artificial water reservoir	<ul style="list-style-type: none"> <li>• Certain changes in coastal morphology and hydrology</li> </ul>	<ul style="list-style-type: none"> <li>• Strict restoration policy for measures</li> </ul>
	Sewage with pollutants and nutrients from recreation and/or tourist facilities	<ul style="list-style-type: none"> <li>• Eutrophication and salinisation</li> <li>• Microbiological pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Execution of wastewater treatment plant</li> </ul>
	Development of hydraulic and communications facilities, etc.	<ul style="list-style-type: none"> <li>• Decrease of moisture in surface</li> <li>• Decreasing rate of water infiltration in aquifers</li> <li>• Increase of wetland drainage flow velocity</li> <li>• Increasing erosion</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of traditional channels</li> <li>• Development of facilities avoiding ecologically sensitive areas</li> </ul>
Geomorphology	Infillings	<ul style="list-style-type: none"> <li>• Degradation and destruction of morphology, vegetation and habitat</li> <li>• Reduction of the rate of recharge within aquifers</li> <li>• Increase the possibility of access to ecologically sensitive areas</li> <li>• Decrease in humidity and precipitation</li> </ul>	<ul style="list-style-type: none"> <li>• Prohibition of such activities within or around ecologically sensitive areas</li> </ul>
	Development of hydraulic and communications facilities, etc.	<ul style="list-style-type: none"> <li>• Fragmented distribution of habitat</li> </ul>	<ul style="list-style-type: none"> <li>• Development of facilities avoiding ecologically sensitive areas</li> </ul>
	Infillings with rubble and/ or other solid wastes from tourist activities	<ul style="list-style-type: none"> <li>• Reducing of water tables</li> <li>• Increasing pollution to sediments and soils</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic solid waste collection and disposal</li> <li>• Regulatory control of illegal waste dumping and spills</li> </ul>
Biome	Excessive hunting and/ or fishing	<ul style="list-style-type: none"> <li>• Loss of biodiversity and populations, especially of endangered or threatened species</li> <li>• Loss of breeding and spawning ground</li> <li>• Change in natural distribution pattern of different species</li> <li>• Probable pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Policy formulation and implementation of regulations for hunting and fishing</li> </ul>
	Development of hydraulic and communications facilities, etc.	<ul style="list-style-type: none"> <li>• Probable isolation of ecological communities</li> <li>• Local loss of vegetation</li> </ul>	<ul style="list-style-type: none"> <li>• Development of facilities avoiding ecologically sensitive areas</li> </ul>
	Introduction of exotic species	<ul style="list-style-type: none"> <li>• Probable loss of indigenous species and biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Strict control and prohibition on such activities</li> </ul>

	Uncontrolled fires (accidental/chance and provoked)	<ul style="list-style-type: none"> <li>• Sudden loss of vegetation, habitat and biodiversity</li> <li>• Decrease in local precipitation</li> <li>• Increasing erosion</li> </ul>	<ul style="list-style-type: none"> <li>• Effort for promoting natural regeneration</li> <li>• Restoration of native vegetation</li> </ul>
<b>Landscape</b>	Infillings	<ul style="list-style-type: none"> <li>• Degradation of landscapes and loss of aesthetic value</li> </ul>	<ul style="list-style-type: none"> <li>• Proper restoration measures</li> </ul>
	Unplanned urbanisation	<ul style="list-style-type: none"> <li>• Loss of landscape quality</li> <li>• Possible increase in pollution level and illegal activities</li> </ul>	<ul style="list-style-type: none"> <li>• Proper restoration measures within the existing urban set up</li> </ul>
	Accumulation of garbage	<ul style="list-style-type: none"> <li>• Rapid loss of landscape quality</li> <li>• Sanitation problem</li> <li>• Possible water and vector borne diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Planned solid waste collection and disposal</li> <li>• Control on illegal waste dumping and spills</li> </ul>

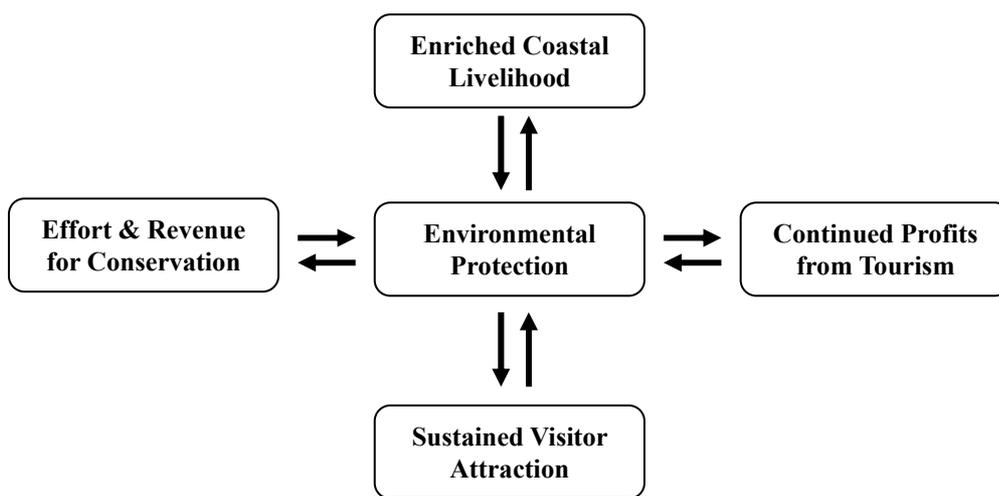


Figure 1. Relationship in sustainable coastal ecotourism (After Garrod and Wilson, 2003)