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SUSTAINABLE TOURISM DEVELOPMENT THROUGH SUSTAINABLE ARCHITECTURE: A PROJECTED CASE STUDY OF COX'S BAZAR, BANGLADESH

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A Thesis submitted to the University of Huddersfield in partial fulfilment of the requirements for the degree of Master of Arts by Research in Architecture

School of Art Design & Architecture

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ABSTRACT

'The problems of environmental damage, economic unsustainability and social dislocation caused by rapid and extensive places for recreation growth might suggest that the key to greater sustainability lies in setting limits to urbanization and changing the rules in architecture and planning for tourism.' (Delia, 2005, pp. 98-10).

The very essence of above quotation has an inseparable relation with the research and therefore the study does fix its primary and principal aim to acquire knowledge and enquire about architectural activism on built activities carried out at tourism destinations in Cox's Bazar. The central focus sheds light on Cox's Bazar (a national tourism heaven and a projected regional hub for tourist activities covering entire region of Bangladesh, part of India, part of Myanmar (Burma) and Southern provinces of China) with specific focus on three selected case studies sites of Belize, Langkawi Island, Malaysia & Greek Islands Mykonos and Santorini. Cox's Bazar is the projected case study for this research aimed to enquire the role of architectural presence (or absence) endorsed or ignored while built activities were carried out and questionnaires, interviews have been conducted.

The study therefore represents the area where Cox's' Bazar missed its chance to explore full potential and how the dilemma could be removed by implementing a coherent architectural activism where the full potential of the site would be possible to realise.

In this connection, the current study aims to focus on built environment where they are demanded for tourism expansion and economic activities particularly in remote and fragile environments where it is vital that impacts be kept to a minimum. This study enquires how coherent architectural activism can address the issue of sustainable accommodation without compromising nature preservation and eco-balance.

The study therefore also includes but is not limited to understanding the socio-cultural, economic and environmental impacts of tourism development on the residents in Cox's Bazar Township. A comparative analysis is pictured throughout the chapters 1 and 9 with an extensive coverage of literature review and case studies along with an indication for future thrust to acquire further academic insight and industry related innovation given attention to climate change and impacts.

ACKNOWLEDGEMENTS

In every piece of completed work, there are few people who work behind the completeness. My current work is not exceptional too. First and foremost debt I owe to my supervisor Dr. Yun Gao and co supervisor Richard Nicholls without whose regular care and guidance this thesis would never been possible to complete. I cannot measure the value of care I received from Dr. Yun. I owe to Mark O'Brien in Architecture department who actually encouraged and cooperated a lot in my early days of admissions and finalising everything to study with University of Huddersfield. I want to pay my tribute to Mark in this occasion.

My family members in UK and back home who extended exceptionally generous support during this tensed time, I even do not imagine to pay tribute because it cannot be repaid. I must pay tribute to my tutors in back home who helped me by providing invaluable advice and showing path to complete the research. I cannot forget the contribution this study received from my dedicated associates in Cox's Bazar during filed works, who travelled hundreds of miles with such a short notice and spent weeks after weeks to collect data, meeting people from different locations and professions, tried level best to conform with research technique and ethics.

My mother who had a dream about my study in UK extended decisive support throughout the duration of study and travelled between Bangladesh, London and Huddersfield in unfamiliar weather condition for her.

I am benefited from works of many predecessor researchers in this area of study in many ways. Their scholarly works enhanced my quality of self thought and insight. I am indebted to all of them. Officials from Cox's Bazar District administration, District Council, Bangladesh Tourism Development Corporation, Department of Architecture in BUET, Bangladesh Bureau of Statistics, Office of local Mayor, Town planning department, Department of Roads and High ways, Department for Public Works helped me by providing relevant information, I am grateful to them.

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ABBREVIATIONS & DEFINITIONS

ABBREVIATIONS

ACF	Assistant Conservator of Forest
ADC (G)	Additional Deputy Commissioner (General)
ADM	Additional District Magistrate
BBS	Bangladesh Bureau of Statistics
BD	Bangladesh
BMC	Beach Management Committee
BPC	Bangladesh Parjatan Corporation
CBTI	Community Benefit Tourism Initiatives
CEO	Chief Executive Officer,
DC	Deputy Commissioner
ET	Eco Tourism
ESD	Ecological Sustainable Development
ETZ	Exclusive Tourist Zone
HMGHOA	Hotel Motel & Guest House Owners' Association
HSC	Higher Secondary School Certificate.
HTL	Highest Tide Level
ISO	International Standard Organization
IUCN	International Union for Conservation of Nature.
IUOTO	International Union of Official Travel Organizations
LG	Local Government
LGED	Local Government Engineering Division
M	Median
MCAT	Ministry of Civil Aviation and Tourism
NACOM	Nature Conservation Movement
NTC	National Tourism Council
ROA	Restaurants Owners' Association
SD	Standard Deviation
SET	Social Exchange Theory
SPARSO	Space and Remote sensing organization.
SPSS	Statistical Package for the Social Sciences
SSC	Secondary School Certificate.

TIES	The International Ecotourism Society
TOAC	Tour Operators of Cox's Bazar
TP	Tourist Police TT- Travel and Tourism
TTE	Travel and Tourism Economy
UN	United Nations
UNEP	United Nations Environment Programme
WTO	World Tourism Organization
WTTC	World Travel and Tourism Council
YLG	Yasir Life Guard.

DEFINITIONS

Architecture

'Arche' is a Greek word that means 'the first' as for 'the best', while 'teknos' means 'to do, to compose, to build' (vocabolario Etimologico della Lingua Italiana, 1993; p.36). For Le Corbusier "Architecture is forms, volumes, colors, acoustics, music. Light and shadows are the loudspeaker..." (Kagal, 1997, p.64) while for Frank Llyod Wright "Architecture is a poem from the hearth, music from inside..." (Wright, 1977; p.362)

Architectural activism

For this study architectural activism is defined as pro active component in planning and built activities where architectural demand prevails over other elements.

Architectural reasoning

In this study, architectural reasoning is translated in regarding a built structure which is viable and justifiable from architectural merit.

Attitude

In the Collins English (1991) dictionary the term is defined as "The way a person views something or tends to behave towards it, often in an evaluative way." In the Swedish National

Encyclopaedia, Rosén (2007) writes that an attitude is a point ofview, an approach to a certain person or a certain phenomenon. The term attitude is important in this study as it concerns responsible decisionsmakers attitudes towards sustainable development in relation to promoting sustainable tourism and responsible travel to the international tourist that are visiting Cox's Bazar

Design

The word 'design' derives from the latin word 'de' (of) 'signum' (sign) that means 'to note with a sign, image' (vocabolario Etimologico della Lingua Italiana, 1993; p.428)

Gross Domestic Product (GDP)

GDP is the total value of goods and services produced by an economy during a period of time minus the intermediate consumption they use to produce their outputs. GDP does not consider imports or exports in the calculation.

PART-I: INTRODUCTION AND GENERAL BACKGROUND

CHAPTER 01: INTRODUCTION AND RESEARCH OVERVIEW

1.1 Introduction

The central focus of this chapter is to introduce the research proposal, purpose and research methodology employed in this study. It therefore presents both the academic framework and conceptual underpinnings. The chapter also presents a chronology of enquires as to why and how sustainable architecture can become a key component in achieving sustainable tourism development.

On the face of the study, this chapter defines the objective and the rationale of the research, and includes its strengths and weaknesses, besides the overall thesis structure and survey methods employed. Indicators of global environmental change and challenges which are key issues in sustainability studies are also mentioned in this chapter.

1.2 Objective of the study

The study principally aims to explore how sustainability studies can encompass both architectural and tourism perspectives. In engaging with the principal discourse surrounding the question of interconnectivity, the researcher needs to include development studies as an essential requisite to achieve a fuller understanding of sustainability. Supplementary enquiries could also include a multitude of other challenges and issues which need to be addressed from a futuristic approach. In this study, the academic enquiry has been juxtaposed with the contemporary trends of tourism development in Cox's Bazar. The research, therefore, aims to find answers to how coherent planning activism can achieve sustainability in tourism industries in particular and long-term social integration and development in general. The study also considers how the resulting eco-imbalance is harmful to the social and economic activities of the local people and may even bring long-term destruction to the social fabric.

Case studies of selected sites and the projected case study of Cox's Bazar can draw further attention to the question as to why architectural activism is a key player in all future built expansion in tourism destinations. An examination of the tourist infrastructure of Cox's Bazar, our projected case study, can in this light, give a new impetus to considerations of how

a hitherto ignored architectural reasoning could in fact pave the way to achieve sustainable tourism development through architecture.

Hypothesis of the study:

The hypothesis which has guided the present enquiry surrounds the question of the ways in which an indigenous belief system surrounding questions of sustainability can contribute to finding desirable planning solutions able to achieve sustainable tourism development through sustainable architecture. In carrying out the actual research project, the following questions needed to be answered:

- **a)** Is sustainable architectural design responsible for achieving tourism sustainability in an expanding tourist spot such as Bangladesh's Cox's Bazar?
- **b)** How could academic understanding and scholarly enquiry meet the perception of local people who do not have any formal education?
- **c)** Why should architectural activism prevail over built activities during any expansion of Cox's Bazar?
- **d)** Are the architectural demands placed on tourist spots in reality a myth, or do travelers actually take architectural aspects seriously when choosing sites to visit? Considering the selected case studies' present accommodation facilities, how far it is appropriate to say that tourism may suffer when it fails to meet this demand?
- **e)** In an imagined scenario, if Cox's Bazar is an example of architectural sustainability, then what other challenges it does face to achieve sustainability?

1.3 The study area and selection criteria

The study area shown in figure 1.1, Cox's Bazar town, accommodates the hotel and motel zone, the marine drive, the dense living conditions of the local community, the Himchari picnic spot, many hatcheries, ranges of hills here and there, and a few roadside industries, which were all included in the scope of research.

What actually led the researcher to choose Cox's Bazar as the projected case study is that it is the longest unbroken sandy sea beach of the world hugely loved by tourists and visitors as a favourite leisure and health resort, which also features a vibrant local culture and heritage,

ancient Buddhist temples, local Burmese handicrafts and fisheries.

But this researcher has found this site most appropriate for a projected case study not for what Cox's Bazar is, but for what it could have been and to show how still its role as the tourism

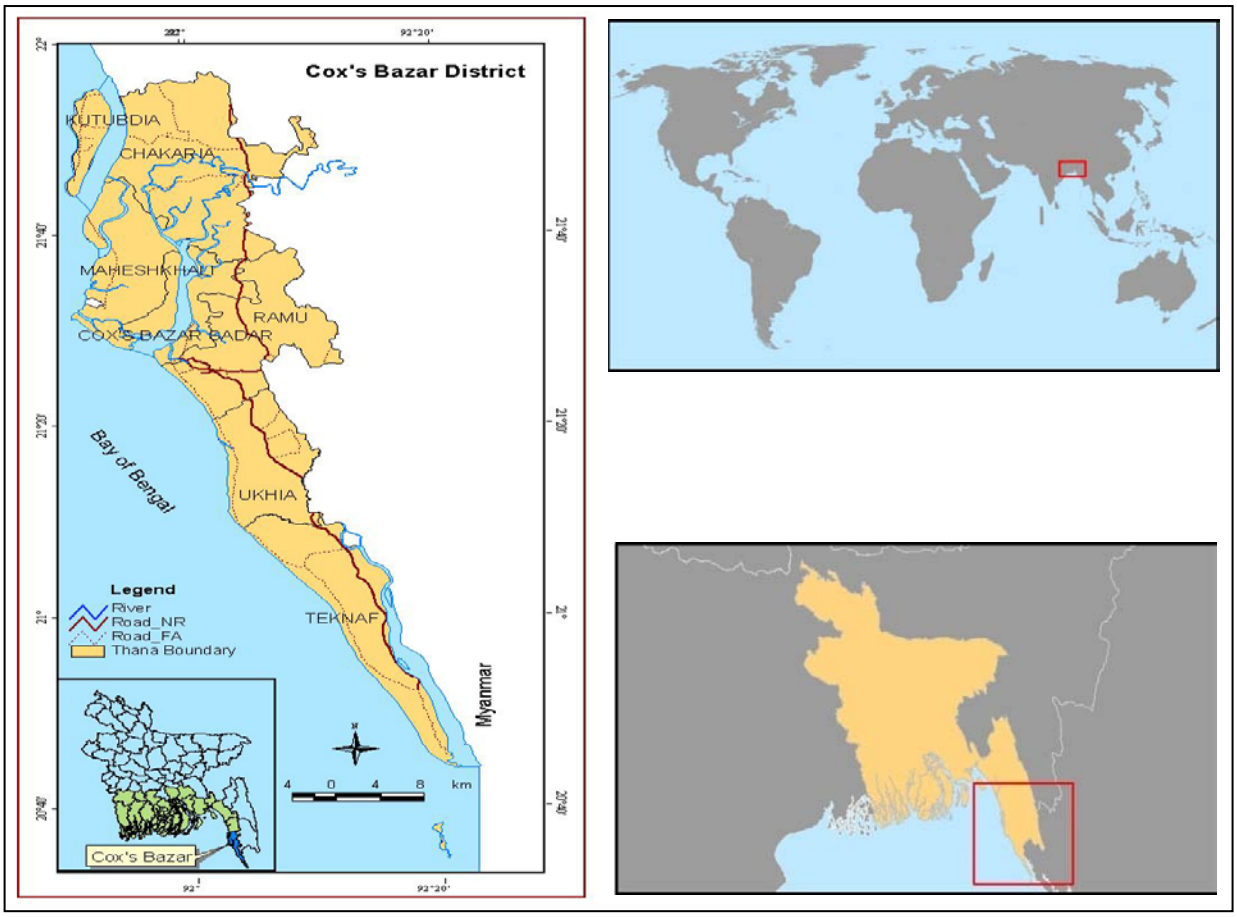


Figure 1.1: Map of Cox's Bazar

capital of that region can still be decisive to change the socio-economic geography of that entire region including Myanmar, the Southern provinces of China and possibly even Thailand. One prime aim of this study is to focus on the 112 km marine drive which can be connected with another 180 km marine drive stretching from Chittagong to Cox's Bazar, parallel to the current ASIAN HIGHWAY reaching Kunming Province in China through Myanmar. Hill-based installations might possibly change the whole regional economy and bring with it huge foreign direct investment (FDI). Figure 1.1 shows the extreme southern tail of Bangladesh which borders on Burma (Myanmar).

1.4 Methodology

The study incorporates different types of social research for collecting and analysing information and written and oral data gathered from 'floating' tourists near beachside hotels, including content analysis. Content analysis is a well-established research methodology commonly used in social sciences to analyse communication (Holsti 1969). Over the past two decades, content analysis research has benefited remarkably from the exponentially increasing volume of electronic data, including articles in general media databases, communications in virtual communities, and textual and pictorial materials from websites (Neuend 2002; Rainer and Hall 2003; Romano et al. 2003; Wickham and Woods 2005). A growing number of tourism studies employ qualitative data interviews, open-ended questions, promotional brochures, web-based content, etc., and subsequently, content analysis techniques to discern meaning from this wealth of textual material. The current and recent publications were analysed thoroughly for learning more about the impact (both positive and negative) and sustainability of tourism in Cox's Bazar.

This research involves both primary and secondary data and information available in this study area along with selected case studies and the projected site in Cox's Bazar

1.5 Method of Research:

The study begins with a literature survey. Both closed and open-ended questionnaires were designed, from which the available data for the study were derived. Despite this quantitative aspect, in fact, the design of the research relies primarily on phenomenological qualitative research wherein descriptive, reflective and interpretive views were presented through interviews and perception study approaches. Thus, the research broadly focused on a qualitative approach while also using some quantitative information to corroborate the findings.

Surveys were made documenting the attitudes and beliefs of adjacent permanent local residents, visiting tourists (domestic and international), small business owners, park rangers, archaeological activists, guides and cross-sectional experts from public offices and civil

society. This was done through the set questionnaire as indicated supplemented by oral interviews presenting local views surrounding the research topic.

1.5.1 Primary source of information

1.5.1.1 Literature survey

An intensive literature survey was designed to acquire knowledge related with the area of study. Data and information were collected from a range of sources. The tourism policy, the coastal zone policy, land use policy, environmental policies and other relevant policies and strategies were taken from the websites of the different ministries of the Bangladesh Government. Different publications related to the research issues were also collected from journals, projects, periodicals and the daily newspapers, archives of both home and abroad. Websites of SPARSO, the water-model institute, and different universities teaching tourism management, the Bangladesh Parjatan (Tourism) Corporation, and the Department of the Environment's policy guidance and action plan were important sources of information. The websites of the World Tourism Organization, ESCAP, IUCN, and UNEP, etc., were also found useful with information on the issue under consideration.

1.5.1.2 Data collection

There has only been very little research conducted previously on the development of Cox's Bazar as a tourist destination and therefore there was a distinct absence of academically usable data. In addition, the comparative lack of coordination among government departments and frequent alteration of priorities followed by changes in the government constitute major weaknesses when it comes to Bangladesh's obvious failure to expose the full potential of this extraordinary gift of nature to the rest of the world. While gathering relevant data in the field, this researcher discovered that government departments had originally proposed (which was later approved by the highest authorities) a 112 km long beachside tourism installation already 30 years ago. Inexplicably, however, the first brick to construct the 112-kilometre marine drive comprising the first phase of the entire plan was only laid in

1991 and the work is still pending. In order to gather copies of official documents, i.e., a copy of town planning, a tourism development master plan, an exclusive tourism area plan, this researcher had to pursue both formal and informal avenues of communication with government officers as no system is in place to facilitate a prompt response to enquiries by the members of the public. Although Bangladesh has introduced a Right to Information Act in recent years, unfortunately, field level officers are not yet familiar with the exercise of this right by members of the public.

In addition to written government documents and data, the research also benefitted from a considerable amount of oral data gathered from short-stay tourists who visited Cox's Bazar for one to three days. In most of the cases these 'floating tourists' managed to allocate between five and 15 minutes to answer questions in brief as they were rushing to see the scenic beauty of the sunset, join remaining family members who were ahead of them, or just because they were not literate enough to fill in the forms as they were in only available in English. This could be said to constitute a limitation of the study and applied particularly to local shopkeepers and rickshaw pullers giving their accounts and opinions, so that aides had to gather oral data from them which later on the same day had to be written down and categorised accordingly.

1.5.1.3 Case studies

Selected case studies contributed significantly to the study as they were based on a mature data bank containing, it was found, a positive outcome of local solutions which harmonised with eco-tourism and sustainable development. They constituted a reaction to or side-effect of the local economy, culture, heritage and bio-diversity. This information and data collected from selected sites helped to assess the challenges, prospects and sustainability studies of Cox's Bazar's tourism potential as increased through the construction of appropriate beach installations. The following selected sites were studied in depth as it was anticipated that such a study would serve to shed more light on Cox's Bazar's projected case study:

Case studies of the Greek Islands Mykonos and Santorini.
Case study: Lungkawi Island, Malaysia (The Island of Legend)
Case studies of Belize.

1.5.2 Secondary sources of information

1.5.2.1 Questionnaire survey

As local communities or residents feel the impact of the ongoing tourism development in Cox's Bazar most acutely, it was felt that they could be a very reliable source of information about what they expect from the development of tourism and to what extent they would regard such a development in a positive light. Keeping this in mind, a six-part questionnaire was conducted among the local community, besides the floating tourists, Government officials and business owners in the study area already referred to.

1.6 Geo-economic importance and Tourism development in Cox's Bazar

Bangladesh is located conveniently on the east-west air-corridor making it a gateway to the Far East. It is endowed with vast resources and the potential for a highly developed and differentiated tourism industry. In the southeast the country has a 120 km long beach of soft silvery sand, reputed to be the world's longest, in a Riviera-like setting with crescent-shaped low hills overlooking the Bay of Bengal. While discussing the panoramic view of Cox's Bazar, we must not ignore its geo-economic importance given its strategic location between the Chittagong Hill Districts, its vast border with Myanmar, an attractive port gateway to the eastern provinces of India and southern provinces of China. The Asian highway that would bridge Bangladesh with the Southern Chinese city of Kunming through Myanmar starts from Cox's Bazar doubtlessly adding further strategic and financial importance. The proposed deep seaport in Cox's Bazar and expansion of the international airport draw a future blueprint of a communications hub placing Cox's Bazar directly in the centre of the circle.

The ranges of the hills clad in lush green thickets are treasured locations for tourists. At the head of this terrain is Cox's Bazar which is as romantic as its name may appear to the outside world. It is also known by the name "Panowa", the literal translation of which is "yellow flower". Its other former name was "Palongkee". The modern Cox's Bazar derives its name from Captain Cox (died 1798), an army officer serving in the then British Indian army. Cox's Bazar town is a small port and health resort. The municipality covers an area of 6.85 sq km

with 27 *mahallas* and nine wards and has a population of 51,918. Located at a distance of 152 km. south of Chittagong, Bangladesh's second biggest city and largest port town, Cox's Bazar is connected both by air and road with Dhaka (the capital of Bangladesh) and Chittagong. Traditionally Cox's Bazar is regarded as being a conservative society and the socio-cultural and economic statistics including the literacy rate reveal that it ranges far below the national average.

Miles of golden sands, tall cliffs, waves suitable for surfing, rare conch shells, colourful pagodas, Buddhist temples and tribes, delightful sea-food - all these make Cox's Bazar what it is today, the tourist capital of Bangladesh. The world's longest unbroken beach, still unspoiled, slopes gently down to the blue waters of the Bay of Bengal against the picturesque background of a chain of green hills. It stretches from the mouth of the Bakkhali River going all the way to Teknaf welcoming tourists for sun-bathing and swimming. It is the main attraction of Cox's Bazar. The breathtaking beauty of the sun setting behind the waves of the sea is captivating. Handmade cigars and the unique handicrafts produced by the (Burmese) Rakhayne tribal families are good buys.

The main attractions around Cox's Bazar include: Aggmeda Khyang, a Buddhist monastery located in the hills, Himchari picnic spot situated just eight kms from Cox's Bazar, Innani Beach, 32 kms away from the town, Sonadia island with very little human visitation, Teknaf peninsula, some 80 kms from town, and picturesque St. Martin Island to the south at 13 kms distance from the mainland. A total of 52 species of birds have been spotted in Cox's Bazar according to a census of aquatic birds (*The Daily Star*, February 2, 2009). All these places are easily accessible from Cox's Bazar by bus, jeep and water. As a result, Cox's Bazar has become a hub of tourism.

Tourism in Bangladesh is managed by Bangladesh Parjatan Corporation (BPC) under the Ministry of Civil Aviation and Tourism. The economic contribution of tourism and the share of Cox's Bazar to the national economy have not so far been studied with any statistical reliability. Very recently the World Travel and Tourism Council's Bangladesh Country Report 2010 (www.wttc.org) had forecast that the contribution of Travel and Tourism (TT) to the Gross Domestic Product (GDP) was expected to rise from 3.9% (BDT265.9bn or

US$3,786.4mn) in 2010 and to 4.1% (BDT788.4bn or US$8,781.7mn) by 2020. The Real GDP growth for the Travel and Tourism Economy (TTE) was expected to be 1.7% in 2010 and to average 6.4% per annum over the coming 10 years. The contribution of the TTE to employment was expected to rise from 3.1% of total employment, 2,373,000 jobs, or one in every 32.3 jobs in 2010, to 3.2% of total employment, 3,114,000 jobs, or one in every 31.1 jobs by 2020. Export earnings from international visitors were expected to generate .5% of total exports (BDT 6.0bn or US$ 85.8mn) in 2010, growing (in nominal terms) to BDT 20.5bn or US $228.5mn (.5% of total) in 2020. The Travel and Tourism investment was estimated at BDT64.0bn, US$911.9mn or 3.7% of the total investment in 2010. By 2020, this should reach BDT190.7bn, US$2,124.5mn or 3.8% of the total investment.

Nearly two million people visit Cox's Bazar in the peak season from November to March (*The Daily Star*, 30 Sep 2009). Visitors are mainly Bangladeshi nationals and originate from all parts of Bangladesh. The basic intent of visitors includes walking along the beach, 'sea bathing' and shopping from the Rakhaine stalls. The beaches of Shoibal, Labonee, Shugondha, Himchari and Innani are particularly heavily visited. Labonee beach is reportedly one of the most heavily visited tourist destinations in the country with daily maximum visitor numbers as high as 30,000 (*The Daily Star*, 30 Sep 2009).

The area from Labonee to Kalatali beach has many hotels, motels, cottages, rest- and guest houses and restaurants, around 300 in number, developed by both private and government sectors for tourists. Some thousands of local and non-local Bangladeshi nationals are working in the tourism sector of Cox's Bazar, a force which has been gradually changing the idyllic rural setting of Cox's Bazar. The chart below shows the annual increase in tourist population in Cox's Bazar and % growth.

Table 1.1: Annual Tourist arrivals in Bangladesh

Year	Number	Growth rate
1991	113242	
1992	110475	(-2)
1993	126785	(+15)
1994	140122	(+11)
1995	156231	(+12)

1996	165887	(+6)
1997	182420	(+10)
1998	171961	(-6)
1999	172781	(+.05)
2000	199211	(+15)
2001	207199	(+4)
2002	207246	(+2)
2003	244509	(+18)
2004	271270	(+11)
2005	312775	(+15)
2006	343590	(+10)
2007	397410	(+16)
2008	468951	(+18)
Average growth rate		9%

Source: Bangladeh Parjatan Corporation (BPC,) 2009

1.7 Thesis structure

The study is split into nine separate but related chapters culminating in a final chapter in which the possibility of future contributions and more insights into this area can be safely predicted.

Chapter one includes a brief policy outline of research method and aspects, structure of the study, working steps, rationale of site selection, primary focus on Cox's Bazar, limitation of data collection and analysis and the objective of the research. The profile of Cox's Bazar is summarised and the objective of each chapter is stated separately with a summary in the beginning of each chapter.

Chapter two provides the details of tourism, sustainability factors, impacts, social and economic connectivity, environmental coherence, social factors and nature of tourist attractions, built structure, planning requirements to accommodate tourists, local economy and preservation of bio-diversity.

The literature used in this chapter includes both academic and industry-related research papers and previous case studies which focused on sustainable development principally but was also recognised as a different area of development requiring specific academic and scholarly understanding to be developed. This chapter also discusses the impact of tourism on the local population, culture, economy, local transport, interconnection, accommodation and town planning.

Chapter three focuses on the theoretical requirements of sustainable urban design planning and its collaboration with sustainable tourism. This chapter reveals a new understanding of this growing field wherein architectural sustainability can simultaneously lead to the creation of tourism-friendly measures (like the construction of eco-friendly tourist lodges) and play a decisive role in nature preservation ensuring thereby both economic and environmental harmony. The chapter discusses the need for and requirements of planned beach installations in tourism destinations like Cox's Bazar where apparently specific architectural structures can make all the difference as an additional source of tourist attraction alongside the beach and other natural features.

Chapter four provides a detailed outline of both the research methodology and the established ideological basis for research along with a clear narrative of the course of the field level work. It includes a description of the public perception based on local viewpoints and strengthened by expert opinion. The descriptions of interaction found here occurred in various stages of research, while the respondents' roles in the perception study form the main focus of this chapter.

Chapter five is devoted to an analysis of selected tourism destinations reflecting the experience and observations made regarding the architectural coherence, disaster management, built structure and impacts, pollution, collision and coherence with local culture, social integrity and the future plan. This chapter will elaborate the impact and sustainability of tourism where architectural presence was – and where it was not - a central component and the way it made a difference in sustainability perspectives. Given the example of Belize, in particular Hidden Valley Inn (a combination of both nature and harmonious built structure by virtue of a small luxury eco-lodge located on a 7,200 acre private reserve in the Maya Mountains of Western Belize), it is one of the prime objectives of this chapter to focus

on existing sites like Hidden Valley and the Greek islands of Mykonos and Santorini, where architectural activism plays a role of paramount importance in tourism sustainability. The preceding chapter demonstrated how man-made architecture took pride of place alongside nature-made tourist attractions. Therefore, in many tourist destinations of the world, it is now an accepted fact that lack of proper accommodation is one of the main barriers in realising the actual potential of the site. In this light, Cox's Bazar may be an appropriate example of the phenomenon of nature paving the way for the development of sustainable tourism while architectural reasoning is largely ignored in town planning and other key tourism installations. Therefore, this chapter will focus on and investigate what is the direct impact of coherent architectural installations in the selected tourism destinations of Belize, the Greek islands of Mykonos and Santorini and Lakawi island, Malaysia.

Chapter six concentrates on Cox's Bazar located in the southern-most district of Bangladesh. Primary data gathered from field level studies and statistics shows that combined and architecturally coherent town planning can change economic and social sustainability in this beach location. The data includes an entire catalogue of factors: a government master plan; local town planning; foreign investments; the census and ratio of the local population to tourists. It further includes the total number of hotels and built structures; sea views and fisheries research; the access of local people to tourism resources; road planning, land and sea communication safety besides a disaster management policy. Last not least it covers the ratio of local to overseas tourists, plus the government's policy paper for eco-tourism and interviews from a cross-section of people linked with the tourism sector in Cox's Bazar. This chapter's investigations encompass the research methods, field techniques, data analysis and the conclusions arrived at.

Chapter seven includes selecting the type and design of the research, the study area, sample size, method of data and information collection, culminating in their analysis.

Chapter eight demonstrates the research results and findings and establishes an overall review of the thesis, this researcher's note on the way the idea was born and developed, ending with a survey of current and future use of the research outcomes.

Chapter nine summarises some of the study's recommendations and represents the

researcher's independent observations, opinions, thoughts and counter-thoughts on the current academic discourse. It makes an alternative development proposal to guide policy makers in Cox's Bazar, giving them some recommendations to conform with architectural reasoning in future built expansion. It advocates having a specific focus on the participatory method of development by placing local host communities in the centre of future built activities. This chapter suggests some opportunities for further research provided sufficient time and resources could be made available. It also includes comments on future issues of sustainability studies interconnected with sustainable tourism development. The chapter sheds light on possible future scholarly contributions in this area which might further advance sustainability studies in the tourism development sector. Finally, it incorporates the significance of future directions of research and expects it to be considered as a wakeup call to policy makers in Cox's Bazar.

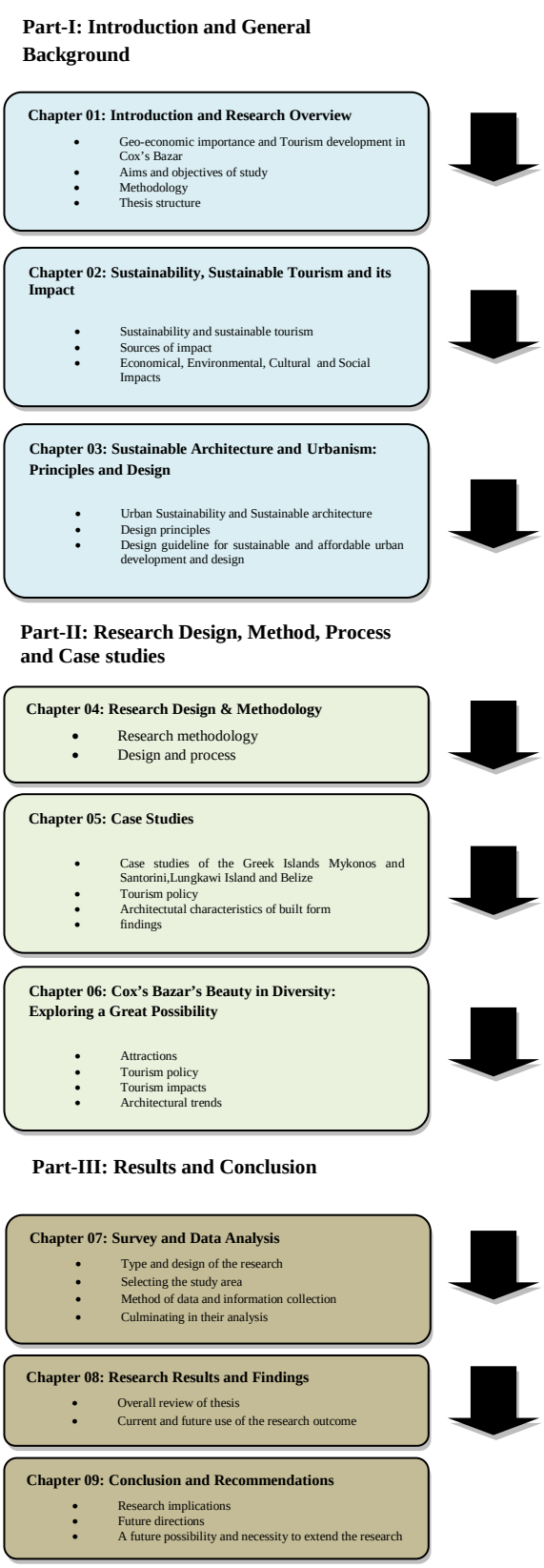


Figure 1.2: thesis structure

1.8 Scope and limitation of the study

The strength of the research lies in the fact that sufficient literature and data could be accessed both off- and online. Comparative studies of this nature can act as a good way of assessing tourism spots across the world. However, the study is limited in its scope and nature, and

particularly as the research itself suffers (until this stage) from the lack of a proper database of research documentation in the relevant (Bangladeshi) government departments, coupled with the unavailability of recent and regular reports on the tourist population of Cox's Bazar and an absence of a coordinated master plan to develop the tourist city. Furthermore, while the researcher took considerable pains to gather field level information on selected spots and other governmental departments, it seemed that the accuracy of data was not always given and often the cross-checks resulted in a difference in numbers, figures and statistics.

When it came to formulating an academic questionnaire, it became apparent that the lack of proper academic understanding of sustainable architecture in terms of sustainable tourism acted as a practical constraint.

Until this stage, making a projected case study based on academic scholarship and industry experience seemed challenging but not impossible or impracticable. As Cox's Bazar was selected as a projected case study to act as a focus of sustainable architecture to promote sustainable tourism, it was felt that formulating a practicable hypothesis was sometimes much more difficult than formulating a real one. During the primary data collection, however, it became all the more challenging to gather the proper data and support a cross-check mechanism.

1.9 Summary

This chapter isolated some possible ways to identify the actual research aims and objectives as well as the various research techniques, from data collection to analysis. It also charted the study's pathway to proceed with the intended research and described methodology. Alongside selected case studies, this chapter sheds light on Cox's Bazar, the site of the projected case study, and identifies the rationale for choosing the site. The chapter also provides a brief description of forthcoming chapters in chronological order.

CHAPTER 02: SUSTAINABILITY, SUSTAINABLE TOURISM AND ITS IMPACT

2.1 Introduction

This chapter aims to focus on academic perspectives of the understanding of sustainable tourism in its fuller meaning alongside other social and economic components.

The literature referred to in this chapter includes both academic and industry related research papers which focus on sustainable development generally; however, sustainable tourism was also recognised as a different area of growth which required more academic and scholarly understanding to be developed.

2.2 Sustainability

Sustainability studies from a broader perspective entail a comparative and interdisciplinary understanding in general but also require a more specific conceptual focus on a particular field like sustainable tourism or architecture. In our case, the core concept of sustainable tourism is a part of a broader study of sustainable development.

In general, the word ‘sustainability’ is derived from the Latin *sustinere* (*tenere*, to hold; *sus*, up). Dictionaries provide several meanings for *sustain*, wherein “maintain", "support", or "endure” are the main ones. The word sustainability was coined in 1987 by the Bruntland Commission, a group assigned to create an agenda for global change set up by the General Assembly of the United Nations. It defined ‘sustainable development’ as one ‘that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (WCDE, 1987). It addresses the need to promote harmony between humans and nature by managing development without destroying the possibility of a good life for future generations.

While making philosophical sense of the words it is still difficult to translate them into practice, especially in architecture and design. What is meant by ‘sustainable development’ in this context is that we must ‘sustain’ nature and integrate it more harmoniously into our everyday lives and environments through better design and management of the environment. However, there is no doubt that a perception of sustainable architecture reflects a new awareness in society generated by growing environmental concerns. As Papanek (1995, p.29) states: ‘ecology and the environmental equilibrium are the basic underpinnings of all human

life on earth….and design must be the bridge between human needs, culture and ecology'

2.2.1 Environmental sustainability

'Environmental sustainability is related to the capacity of the natural and built environment to handle tourism without damage' (McVey, 1993)

It is now history that development in general and over-development in particular has destroyed the environmental balance in almost in all corners of the world for the last one hundred years, especially since the dramatic increase of deforestation due to the use of wood to fuel brick fields and in construction industries. The environmental preference was either sacrificed or set aside to achieve the instant target of development. Therefore it is perhaps no surprise that the earth has, according to some people, started 'taking revenge' and over-development fired back. An example of this is possibility is the recent earthquake in the popular tourist haven, the Greek islands, which have been accused of over-development in the last two decades with unplanned construction believed to have been the perpetrator. (Bittlestone, 2005)

Suzuki (1993, p.146) validly points out that the problem of sustainable development is linked to the fact that we cannot relate on a personal level to the vastness of the environmental problems facing us now and awaiting us in the future. The present research aims to investigate how the absence of architectural planning or unplanned beach installations further contributes to environmental degradation in selected tourism destinations. More positively, the study shows environmental sustainability can be achieved through more eco-friendly planning of installations in tourism hubs like Cox's Bazar.

2.2.2 Economic sustainability

As understood by McVey (1993) in his three core principles analysis:
'Economic sustainability refers to maintaining growth rates at manageable levels; promoting tourism while keeping an eye on capacities to handle greater demand in order to avoid consumer dissatisfaction.'

While economic sustainability is considered a pre-condition to achieve social and

development sustainability in general and particularly in tourism destinations, it has been seen that tourism sustainability has also been crucial to achieve economic and social sustainability.

According to Alessi (2009, p.7) economic values are given high priority by governments, industry and the general population due to the importance attached to economic development in modern times. Where Roger and Feiss advocate the need for an economic revolution and call for a changes in social priorities, they see sustainability as an approach to development that emphasises technological rather than economical concerns (Roger and Feiss, 1998, p.203). However, Agenda 21, the action plan of the United Nations Conference on Environmental and Development, concluded that as economic growth increases, both production and the incidence of 'environmental rape' (Aloisi de Landerel, 1997, p48) also increase (cited by Alessi, 2009, p.7)

2.2.3 Social sustainability

Social sustainability refers to the ability of a society to ensure the well-being of its people, and to do so in a fair, equitable way (Yeaken, 2000). It depends not only on the qualities of the physical world, that is the environment, in its natural and built forms, but also on the public need to accept their role in changing the current unsustainable trends (Alessi, 2009).

In general understanding, the social sustainability concept requires social integrity and belonging, a sense of social community irrespective of class, gender, profession and time that ensures equitable and justifiable distribution of social resources for its members both present and future. But it would be wrong to think social sustainability only depends on distribution of resources; rather, it is increasingly a question of both resources and motivation, coupled with strong bonds among the members of any specific social community.

As demonstrated by McVey (1993) in his three core principles analysis:

‘Social sustainability refers to society's ability to absorb increasing tourist arrivals without adversely affecting or damaging indigenous culture.’

Figures 2.1 and 2.2 shows the interrelation between three types of sustainability:

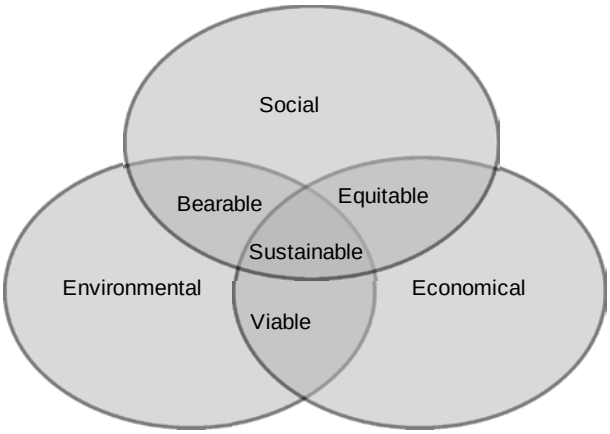


Figure 2.1: Definitions of sustainability often refer to the "three pillars" of social, environmental and economic sustainability (Adams, 2006).

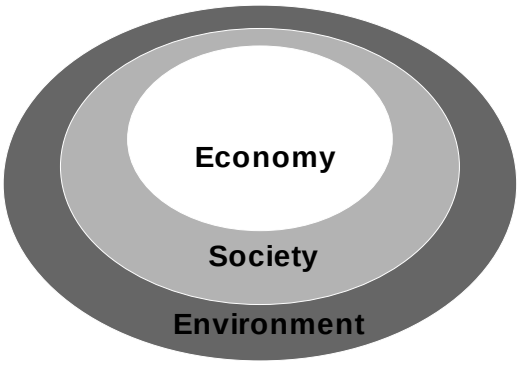


Figure 2.2: A representation of sustainability showing how both economy and society are constrained by environmental limits (Adams, 2006)

2.3 Sustainable tourism: Definition and Principles

‘Our biggest challenge in this new century is to take an idea that seems abstract - sustainable development - and turn it into a reality for all the world’s people’ (Annan, 2004, p.3).

In general, sustainable tourism is an industry committed to making a low impact on the environment and local culture, while helping to generate income and employment for local

people. The aim of sustainable tourism is to ensure that development is a positive experience for local people, tourism companies, and tourists themselves. Its objective is to retain the economic and social advantages of tourism development while reducing any undesirable impacts on the natural, historic, cultural or social environment. This can be achieved by balancing the needs of tourists with those of the destination.

According to Alessi (2009, pp.1-2) the notion of sustainability has become fundamental to the international discourse on tourism and has emphasised a particular type termed sustainable tourism.

According to Choi and Sirakaya (2005), sustainable tourism is defined as an alternative form of tourism that improves the quality of life of the host community while providing a high quality experience for the visitors and maintaining the quality of the environment on which both the host community and the visitors depend. According to Agenda 21 for the Travel and Tourism Industry: 'Sustainable tourism can be defined as the tourism that meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future.' Tourism Canada (1990) has postulated the following more elaborated definition of sustainable tourism development: 'Tourism development that leads to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled, while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems.'

The Quebec Summit (The world eco-tourism summit, in Quebec, Canada, in May 2002) produced a statement about the objective of ecotourism embracing the principles of sustainable tourism presenting the following specific principles which distinguish it from a wider definition of the concept of sustainable tourism as it:

- Includes local indigenous communities in its planning, development and operation, and contributing to their well-being;
- Interprets the natural and cultural heritage of the destination to visitors;
- Lends itself better to independent travelers, as well as organised tours, for small-size groups.

(The World Ecotourism Summit, 2002, p.2)

2.4 Principles of Sustainable Coastal Tourism

According to the World Conference on Sustainable Tourism, meeting in Lanzarote, Canary Islands, Spain, on 27-28 April 1995, coastal tourism development should:

- be ecologically bearable in the long term, as well as economically viable, and ethically and socially equitable for local communities;
- be integrated with the natural, cultural and human environment; it must respect the fragile balances that characterise many tourist destinations along the coast;
- consider its effects on the cultural heritage and traditional elements, activities and dynamics of each local community;
- encourage the participation of all actors, both public and private, and should be based on efficient co-operation mechanisms at all levels: local, national, regional and international;
- support quality criteria both for the preservation of the tourist destination and for the capacity to satisfy tourists;
- be fully integrated into and contribute positively to local economic development and serve effectively to improve the quality of life of all people;
- promote measures that permit a more equitable distribution of the benefits and burdens;
- encourage the adoption and implementation of codes of conduct conducive to sustainability by the principle actors involved in tourism, particularly industry.

2.5 Impacts of tourism

Gonsalves (1999) said the impact of international tourism in the Third World (developing countries) is different from that in the developed world due chiefly to differences in economic level, cultural patterns, legal systems and public awareness. The impacts of tourism on any destination will be determined by an extensive diversity of factors (Cooper 1997, p.94):

- The volume of tourist arrivals
- The structure of the host economy
- The types of tourism activity

- The fragility of the local environment.

The inherent structure and characteristics of the communities the tourists visit will play a major role in influencing the types of tourism impacts that occur (Richards and Hall, 2000). Local culture beliefs and traditions, uses of the environment and infrastructure can all influence the type and quantity of tourism in a community and also govern local reactions to tourism, how tourism develops and impacts the community. The natural environments within which communities and tourists interact are important factors that influence tourism impacts. Tourism that occurs in coastal environments differs from land based environments in terms of anthropogenic uses, property values and vulnerabilities (Diedrich, 2008)

While assessing the potential for coastal tourism development, it is important to identify and understand the potential impacts such development can have on the human and natural resources of the coastal area. The development of coastal tourism can have immeasurable impacts on the coastal region, and can, in turn, be impacted by non-tourism-related activities. These impacts can be positive, such as job creation for local people, or negative, such as coastal degradation due to unplanned development of coastal hotels (Hall, C. Michael & Lew, Alan, A., eds., 1998). The impacts of coastal tourism can best be analysed by looking at the following dimensions of sustainability:

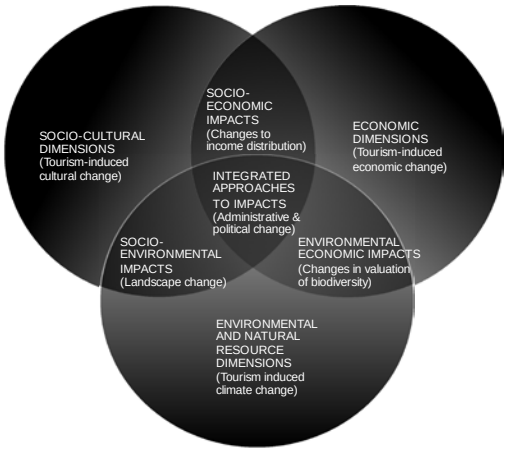


Figure 2.3: Dimensions of the impacts of tourism (Hall, C. M. & Lew, A. A., eds. 1998)

Table 2.1: Tourism development pitfalls

Overcapacity of infrastructure	• Unanticipated low demand. • Over-construction of facilities.	• Industry: financial losses from low occupancy rates and competitive price cuts • Government: insufficient tax revenues to maintain infrastructure, loss of citizen confidence • Tourists: possible lower prices or greater value of their money • Residents: employment layoffs and salary reductions
Under capacity of infrastructure	• Unanticipated high demand • Lack of resources (human and land) to meet demand	• Industry: income windfall due to ability to charge the high prices; increasing high development costs • Government: loss of citizen confidence if competition with tourists results; threats of poor quality facilities due to development pressure • Tourists: lack of supply may lead to disappointments; including not feeling that they are getting value worth the money • Locals: much economic opportunities, but higher costs of living and may feel competition for resources from tourists
Poor quality experiences and facilities	• Poor management, training, maintenance in industry. • High crime, civil unrest and economic decline • Pollution and over exploitation of local resources (natural, cultural and labor)	• Industry: lower cost, but shorter visiting and fewer repeat visitors. • Government: inefficient utilization of resources and economic opportunities. • Tourists: disappointing experience, perceived poor value for money. • Locals: less opportunity for quality recreation and meeting higher needs; alienation and resentment.

Source: Hall, C. M. & Lew, A. A., eds. (1998)

2.5.1 Tourism and its economic impacts

The economic impacts of coastal tourism include both positive and negative aspects in terms of the local and national economy. At the local level, the construction and operation of hotels and other accommodation can provide direct employment opportunities. The presence of tourists can lead to the emergence of numerous types of supporting services and businesses such as restaurants, tour agencies, etc., many of which can be developed and managed by the local population. These linkages to other ancillary or supporting services can serve as a multiplier effect throughout the local economy. Coastal tourist activities can provide revenue to local government authorities through taxation and other revenue bearing activities. At the national level, the development of coastal tourism can provide much-needed foreign exchange and tax revenue, contributing to the growth of the national economy (fig 2.4).

Another potentially adverse impact of coastal tourism on the local economy is the potential increase in local prices for certain items, such as land, foodstuffs and other necessities. Areas with tourism potential may be targeted by speculators or developers, whose competition for finite resources can drive prices higher and higher, until only foreign investors are able to afford land.

Tourist demand for local agricultural products could cause prices to increase so much that local people are unable to meet their basic needs. Table 2.2 shows the positive and negative economic impact of tourism on the host community, whereas figure 2.4 addresses various factors that help govern tourism's economic impact.

Table 2.2: Economic impacts

POSITIVE	NEGETIVE
• Contribute to income and standard of living	• Increases price of goods and services
• Improves local economy	• Increases price of land and housing
• Increases employment opportunities	• Increases cost of living
• Improves investment, development, and infrastructure spending	• Increases potential for imported labors
• Increases tax revenues	• Cost for additional infrastructure (water, sewer, power, fuel, medical, etc.)
• Improves public utilities infrastructure	• Increases road maintenance and transportation systems cost
• Increases opportunities for shopping	• Seasonal tourism creates high risk, under or unemployment issues
• Economic impacts (direct, indirect, induced spending) is widespread in the community	• Competition for land with other (higher value)economic uses
• Creates new business opportunities	• Profits may be exported by non local owners
	• Job may pay low wages

Source: Kreag, 2001, p.6

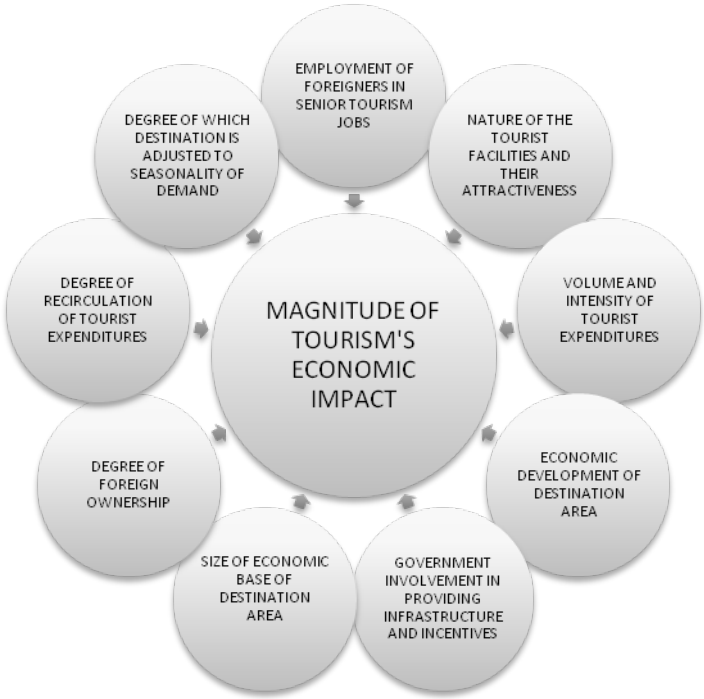


Figure 2.4: Factors governing tourism's economic impacts (Lea, 1988).

2.5.2 Tourism and its physical environmental impacts

Environment is a key issue in tourism development and the quality of the environment, both natural and man-made, is essential to tourism. However, tourism's relationship with the environment is complex - many activities can have adverse environmental effects. Many of these impacts are linked with the construction of the general infrastructure such as roads and airports, and of tourism facilities including resorts, hotels, restaurants, shops, golf courses and marinas. The negative impacts of tourism development can gradually destroy the environmental resources on which it depends.

Coastal tourism can also have positive impacts on the environment. Employment and other tourism-related revenues can serve as alternatives for destructive, unsustainable resource use. Revenues from tourism can also be used to finance the conservation of specific resources such as mangrove reserves and marine parks. The development and implementation of mechanisms that return some of the revenues generated from tourist activities to the conservation and protection of the natural resources on which tourism is based are a major step forward in developing a healthy and sustainable industry.

Tourism has the potential to create beneficial effects on the environment by contributing to

environmental protection and conservation. It is a way to raise awareness of environmental values and it can serve as a tool to finance protection of natural areas and increase their economic importance. Negative impacts from tourism occur when the level of visitors' use is greater than the environment's ability to cope with this use within the acceptable limits of change. For example, tourist hotels often consume large amounts of fresh water in maintaining their grounds, filling swimming pools, cleaning rooms and washing linen, not to mention the daily consumption by guests. If freshwater resources are limited, tourist activities can come into conflict with other users, such as farmers and households.

Uncontrolled conventional tourism poses potential threats to many natural areas around the world. It can put enormous pressure on an area and lead to impacts such as: soil erosion, increased pollution, discharges into the sea, natural habitat loss, increased pressure on endangered species and heightened vulnerability to forest fires. It often puts a strain on water resources, and it can force local populations to compete for the use of critical resources. Critical ecosystems, such as mangroves, estuaries and reefs can be damaged by coastal tourism activities if not managed properly.

2.5.2.1 Physical impacts of tourism development

According to Girard, L. F. and Nijkamp, P. (2009) the process of urban regeneration often attached to the development of tourism is one of the important positive physical impacts brought by the presence of tourism. Tourism can lead to an increased protection of urban landscapes, a better maintenance and presentation of public spaces, and the creation of new infrastructures to service tourists, which would at the same time benefit residents. But an excessive development of a tourist presence might bear the risk of transforming cities' urban heritage into mono-functional spaces, threatening the long-term conservation of this heritage. This has been happening in different parts of the world: where public spaces have been reorganised according to tourists' demands, some places of interest have been destroyed or damaged because of heavy tourist flows and the related pollution. This represents a major loss of authenticity of some locations, which become degraded to stages of tourists' entertainment and have thus lost touch with the human capital of the place itself.

2.5.3 Social and cultural impact

The social impacts of coastal tourism are quite difficult to measure but are often fairly negative. On the positive side, tourism can promote intercultural understanding between host and visitor. Tourists are often perceived as wealthy by young people, who then try to emulate their lifestyles without realising the fact that most tourists work hard most of year in order to afford to take a holiday. Tourists are also seen as a source of easy money, which may lead some people to try and take advantage of them in order to make some quick cash. Conversely, tourists are often not aware of local values and customs, which can lead to conflicts between host and visitor. Any negative social impacts can be mitigated in part by educating both local people and visitors about their respective cultures. Ensuring local participation in the planning and benefits of tourist activities can help to alleviate potential problems.

The impacts of coastal tourism on cultural heritage are also important. The development and promotion of cultural heritage attractions can lead to the further protection of those attractions through self-sustaining financing mechanisms. The process of identifying potential heritage attractions can lead to a better understanding within the local community of their unique history and culture. Demonstrations of local lifestyles and practices are often of interest to visitors and can provide income directly to local families. As with natural resources, cultural heritage sites and village attractions can be adversely affected if attention is not paid to the capacity for these sites and people to handle potentially large numbers of tourists. On the whole, there is no doubt that the conservation and promotion of cultural heritage can make a destination more attractive to visitors. However, cultural sites and traditions need to be carefully managed to ensure that their values are not eroded in the process of becoming tourist attractions.

2.6 Summary

This chapter has attempted to isolate the core components and issues in tourism sustainability studies and possible impacts on other sectors associated with tourism. This chapter benefitted from the academic and theoretical perspectives presented and has even broadened the discussion to include other related sectors. It also elaborated the impacts of tourism on the environment in detail.

CHAPTER 03: SUSTAINABLE ARCHITECTURE AND URBANISM: PRINCIPLES AND DESIGN

3.1 Introduction

This chapter focuses on the academic requirements of sustainable architecture, urban design planning and collaboration with sustainable tourism. It enquires a new understanding of this growing field where architectural sustainability is dependent upon the requirement of sustainable tourism development.

It also reports on local material-based design and built techniques to achieve sustainability from an academic perspective and a comparative analysis.

3.2 Sustainable architecture

According to Edwards (2005), "Designing sustainably is also about creating spaces that are healthy, economically viable and sensitive to social needs. It is concerned with respecting natural systems and learning from ecological process." He describes 'sustainability' as a complex word for architects as designing sustainably is a technique to make balance between capital cost and long-term asset value. In general, Sustainable architecture describes environmentally-conscious design techniques in the field of architecture which seeks to minimize the negative environmental impact of buildings by enhancing efficiency and moderation in the use of materials, energy, and development space. The idea of sustainability is to ensure that our actions and decisions today do not restrain the opportunities of future generations.

Architecture has become the target of specific strategies as building industry consumes one-sixth of the world's fresh water supply, one-quarter of its wood harvest, and two-fifth of its fossil fuels and manufactured materials (Wines, 2000). Sir Norman Foster suggested in a talk at the conference for solar energy in Architecture in 1993 in Florence, architecture's relationship to sustainability is seen as inevitable and 'not about fashion but about survival' (Behling,1996,p.8). Foster also announced a series of principles with the aim of redefining architecture and urban planning for the future. Those principles refer to the need of our species and society to maintain a sustainable relationship with the earth and with architecture in a way that harmonizes with natural cycles, rhythms and resources. In Foster's opinion this aim can be met by architects as they have the knowledge and skills to create coherence between climate, resources and place in ways in which 'maximum benefit could be obtained

by minimum resources' (Behling, 1996, p9).

Williamson, Radford and Bennetts (2003) addresses three contrasting images of architectural sustainability (Table 3.1) which are caricatures in the sense that real building tends to play with more than one image at a time.

Table 3.1: Three images of architectural sustainability

Image	Dominant concern	Dominant horizon	Symbolism/ aesthetics	Approach
Natural	Environmental place, ecosystems, health, balance	Local	'Touching the earth lightly' with forms echoing nature	Study local natural systems; emphasize sensitivity and humility in relation to nature.
Cultural	Cultural place, peoples, genius, loci, difference, cultural sustainability	Global	Highly contextual with forms, materials and construction methods echoing the local vernacular	Study local culture and building; emphasize local involvement and local expertise
Technical	Technologies, global environmental impacts, cost benefit analysis, risk management	Local	Leading edge contemporary international systems	Study science economics and technology; emphasize transnational expertise

Source: Williamson, T., Radford, A. and Bennetts, A., 2003

3.3 Vernacular Architecture as a form of Sustainable design

The term 'Vernacular architecture' used to categorize methods of construction by using locally available resources and traditions to address local needs, circumstances and reflects the environmental, cultural and historical context in which it exists.

The Latin word 'vernacular' means native. Architecture is vernacular when it exhibits all of its criteria related to the 'native context' in the sense that it can only be acceptable and recognizable within any particular society by applying some particular technology, materials, social rules and systems (Islam, 2003).

Frank Lloyd Wright (1911, reprinted in 1986) describes vernacular architecture as a primitive from of design, lacking intelligent thought. Turan (1990) describes Vernacular architecture is a practical activity pursuing environmental adequacy rather than knowledge; it is a way of acting within the conditions of existence, fulfilling certain environmental needs for a particular group of peoples.

Oliver (1997) describes "Vernacular architecture comprises the dwellings and all other buildings of the people. Related to their environmental contexts and available resources, they are customarily owner- or community-built, utilising traditional technologies. All forms of vernacular architecture are built to meet specific needs, accommodating values, economies and ways of living of the cultures that produce them."

Most of these definitions can be mentioned as the descriptions of the essential features or purposes of vernacular architecture. With the help of these descriptions and in combination with the essential features of vernacular architecture can be written as a architecture which refers to the built forms that are built of local materials using available technology in a functional way that is devised to meet the needs of common people in their time and place. Vernacular architecture can be used as a form of sustainable architecture as it is built with locally available material, technology and fulfils the need of local people as per their way of living and life style.

3.4 ESD principles for sustainable design

ESD or Ecological Sustainable development took place in design process as in the last few years all over the world there has been a tendency to consider environmental and ecological issues within design and architecture. Though there is a certain amount of consensus between business interests, governments and environmentalists about the need for sustainable development conflicts arise about the adequate understanding and application of Ecological sustainable development (ESD) and principles for assessing such development (Alessi, 2009). Acceptable amount of environmental impacts and how much resource depletion should be accepted needs to be addressed. Policies have been formulated by different organisations around the world in order to help with the process of understanding the degree of acceptable environmental impact. The United Nations lists five principles of sustainable architecture

(Steinfeld, 2000):

- ‘Healthful Interior Environment’ considers that materials and building systems into the interior atmosphere do not emit toxic substances and gasses;

- ‘Resource Efficiency’ considers that the minimal use of a building's energy and other resources is minimal. (Cooling, heating and lighting systems, water use and the production of wastewater);

- ‘Ecologically Benign Materials’ is directed to building materials and products that minimise the destruction of the global environment.

- ‘Environmental Form’ calls for a building plan to be in harmony with the landscape;

- ‘Good Design’ promotes an ‘efficient, long-lasting and elegant relationship of useareas, circulation, building forms, mechanical systems and construction technology’.

The sustainable building category, established in 1989, relates to assessment criteria for ecologically sustainable development (ESD). These criteria have been summarised in the following six categories (Alessi, 2009):

- Site - minimising the impact on the site while using passive solar design to orientate the building towards the sun and natural light.
- Energy - the use of renewable energy sources, particularly in relation to heating, cooling and lighting.
- Materials - selection and use and reuse of non-toxic materials, taking into account life cycle and embodied energy factors.
- Water - on site retention and collection of water, treatment of effluents for reuse and efficient appliances for its conservation.
- Waste - minimising the amount of waste during construction and strategies for recycling.
- Social issues - promoting connections with local communities and considering users’

understanding of the ESD aspect of the development.

3.5 Urban sustainability: Meaning and Principles

Urban sustainability can be defined as the state a metropolitan community reaches once it is able to meet the needs of the present generation without compromising the ability of future generations to meet their own needs (Brundtland Commission, 1987). This is the most commonly accepted definition of sustainable development in the world today which appeared in 1987 when the United Nation's World Commission on Environment and Development published its famous report entitled "Our Common Future." The central focus of this report is that economic growth and development and environmental preservation are not mutually exclusive objectives but rather are mutually supportive and fundamentally interdependent objectives.

Sustainable Urban Form concentrates compatible mixed-use growth in existing built areas and urban structures begins with the urban region; the town or city and coastal hinterland. The sustainability of each is independent. The town or city depends on its hinterland for food and water, clean air and open space. The hinterland depends on the town and city as market for his produce and for employment and services but is also affected by urban waste and pollution (Thomas, 2003) Sustainable planning demands a more holistic and integrated approach to the urban region, which recognizes the interdependence and potential of both town and country.

Therefore, a study on urban sustainability is an inseparable academic requirement associated with the need for sustainable development studies and it is important to know about the current dilemma in this area.

3.5.1 Principles for Urban Sustainability

According to (Mcgeough, et al. 2004) five guiding principles for sustainable urban design emerge from both the recent international symposium and literatures on the subject are as follows:

- **'Sustainable Energy Resources and Practices**, maximises the efficient utilisation of energy resources and minimises or eliminates local and global environmental degradation. Due to the reduction of CO_2 and other greenhouse gas emissions, future development and use of energy resources in our cities should also consider direct and indirect impacts on the environment, habitat and biodiversity.

- **'Ecological Urban Form and Function**' should be designed and developed to emulate nature and to maximise the benefit of natural systems such as wind and water flows, sunshine, precipitation, and the absorbency of land and vegetation. Further, urban functions should be managed to reinforce these natural flows and characteristics wherever possible, thereby creating a balanced and mutually supportive cycle of interaction between the built and the natural environments.

- **'Community-Based Recourses Management'** encourages the development of design elements that engage individual neighborhood communities and their residents in as many aspects of natural and human recourses management as possible. With community-based resource management, each community regardless of size bears responsibility for the efficiency of its practices and has the opportunity to better understand the interrelatedness of water, energy and waste disposal services.

- **'Land Use Optimisation'** restructuring and more efficiently utilising the existing urban developed areas, all cities, regardless of size, can minimise the utilization of natural and human resources. This can create opportunities for increased social and economic interaction and diversity within each communities which will dramatically reduce energy consumption, degradation of local ambient air quality, and the emission of greenhouse gases to the atmosphere.

- **'Social and Economic Equity**' offers equivalent access for all residents to affordable housing, social services, and employment and economic development opportunities. Without this social element, efforts to ensure the efficiency of energy resource use and minimise adverse environmental impacts will ultimately be insufficient to assure that the community will sustain itself and prosper.

3.6 Design Concept

Taken together, these five principles suggest a unified design concept for urban sustainability. The concept would direct all future urban growth away from ecologically sensitive terrestrial, coastal, and marine areas and toward previously developed areas in ways that reinforce urban vitality and support the expansion of urban mass transit and its use. Additionally, the concept entails the development of sustainable villages or neighbourhood settlements within urban areas. These sustainable villages provide a balance of affordable housing options, employment and economic development opportunities, and access to shopping, education, recreation, and cultural amenities.

3.7 Design Elements

According to Mcgeough (2004) there are seven highly interdependent elements of any sustainable urban design. Each corresponds to one of the seven basic systems that support all urban functions. These are:

- Natural systems;
- Land use systems;
- Mobility systems;
- Energy systems;
- Environmental management systems;
- Building design systems; and
- Governance systems.

The following text discusses each of these systems and their interrelationships and provides a range of tactical measures that can be taken to maximise their individual contributions toward urban sustainability.

3.7.1 Natural Systems

Sustainable design should emphasize in reducing impacts or environment. Subsystems must be examined in order to understand the natural context of urban development. The following four natural subsystems that must be examined in order to understand the natural context for urban development.

3.7.1.1 Land

Carrying capacity of land and its suitability for development is the first consideration in the urban design process. This capacity and suitability will depend on topography, geology, soil composition and permeability; and on their interactions with water elements in the natural landscape.

3.7.1.2 Water

All sustainable urban development must be designed to accommodate the natural characteristics of indigenous water elements. The essential components include all surface waters and watercourses, groundwater in underground aquifers, floodplains, and wetlands. Given the composition and topography of land, all waters have a natural direction of flow, velocity, circulation, and carrying capacity. Water quality is directly affected by all of these factors, as are the lives of all human, animal, and plant communities.

3.7.1.3 Climate

Macro-climate considerations such as annual average cloud cover/sunshine; ambient air temperatures; precipitation and air flows have a significant effect on the habitability of any natural area. Sustainable design will help to mitigate the impact of climate extremes on the built environment while it connects natural forces to reduce energy consumption.

3.7.1.4 Habitat

Urban development patterns and practices directly affect habitat and the natural web of life through the direct or inadvertent manipulation of land, water, and air resources. As these conditions are maintained, diverse animal and plant life flourishes as natural habitats, plants and animals rely on the unimpeded flow and interaction between these three subsystems for food, shelter, and protection.

3.7.2 Land use systems

The second element in urban design is the designation of various land uses within existing or proposed areas of development. Land use planning has significant effect on the use of material and energy resources in the entire sustainable design process. The objective of a sustainable land use planning is to establish a pattern of ecologically sound and mutually compatible urban land uses that make maximum use of established infrastructure and the flow of natural elements.

3.7.3 Mobility systems

For a sustainable form to take shape and thrive there must be a fundamental restructuring of the present patterns of urban mobility. For example, heavy dependency on private automobiles has led to unsustainable urban growth. The unified design concept outlined in this thesis calls for discouraging automobile-dependent urban development. Further, it calls for expanding non-motorised local mobility options and public transportation systems that utilise alternative fuels, vehicles, and fuelling infrastructures.

3.7.4 Energy systems

Presently, most electrical energy that reaches our cities is generated at central power plants, often located hundreds of miles away. While this arrangement does not directly emit air pollution into urban air-sheds, emissions from central power plants are still being released into the atmosphere and spent cooling water is being released into the aquatic environment.

3.7.5 Environmental management systems

Urban solid waste, water, and air pollution control technologies provide for the essential protection of the natural systems upon which all life in a metropolitan region depends. The effective management of solid wastes and municipal wastewater treatment are among the most important, as they can also reduce air emissions and produce energy as well.

3.7.6 Building design systems

A more sustainable approach to urban design at the building scale entails, first and foremost, the optimal siting of structures for use of solar energy and for air-flow efficiency. Reduction of material and energy consumption is central issue to sustainable urban development. To create a more sustainable community building designs and construction practices should use less material and energy. The use of plant resins and fibres, along with recyclable materials, for solid and fabric surfaces and coverings also make sustainability sense. In general, the use of fully recyclable materials should be sought in as many building applications as is practical.

3.7.7 Governance systems

Govern system is also main concern to create sustainable urban community. Govern system associates to create policy, and regulatory dimensions of the sustainable urban design effort. Without strong public leadership, an open and fully participatory process, and a systematic approach to defining, designing and developing a more sustainable urban form, sustainability will not materialise.

3.8 Architectural Reasoning in Sustainable Tourism

The subject of sustainable design has gained increasing importance in the tourism industry and architectural organisations have found ways of involvement in the sector by participating in conferences and awarding of prizes. Metha et al (2000) maintains that there are ten principles for tourism facility which can make the facility considered an example of best practice. The entire ten principles as outlined by Metha et al (2002) includes that any tourist destination and facilities should:

- Help in the conservation of the surrounding flora and fauna.
- Endeavour to work together with the local community.
- Offer interpretative programmes to educate both its employees and tourists about the surrounding natural and cultural environments.
- Use alternative, sustainable means of water acquisition and reduce water consumption.

- Provide for careful handling and disposal of solid waste and sewage.
- Meet its energy needs through passive design and renewable energy sources.
- Use traditional building technology and material whenever possible and combine these with their modern counterparts for greater sustainability.
- Have minimal impact on the natural surroundings during construction.
- Fit into specific physical and natural contexts through careful attention to form, landscaping and colour, as well as the use of vernacular architecture.
- Contribute to sustainable local community development through education programmes and research.

3.9 Summary

This chapter reports on the academic components of sustainable urban design in line with relevant thoughts and academic insight. It focuses on the economic development of the locality as well as environmental impact and architectural reason based on local demand and eco-friendly built structure. This chapter also focused on other associated areas of further studies and future contributions by scholars through more research in this area.

PART-II: RESEARCH DESIGN, METHOD, PROCESS AND CASE STUDIES

CHAPTER 04: RESEARCH DESIGN & METHODOLOGY

4.1 Introduction

The chapter outlined research methodology and established philosophical basis for research along with a clear narration of field level work. It included public perception attracting local view and strengthened by expert opinion. The description of interaction occurred in various stages of research, respondents' role in the perception study are focused in this chapter.

This research explores the degree of sustainability in the manner of tourism and built form. According to Philimore and Goodson (2004), in tourism research there is an ongoing need for statistical insights, but qualitative approaches offer a great deal of potential in understanding actions, problems and processes. Though this study attracts the components of sustainable tourism and architecture almost in equally divided size of texts and annexure, it fundamentally enquiries about the principles and policy of built structure in tourism destinations of the world. Along with selected case studies, Cox's Bazar was focused on specifically as a future project and data gathered from the site directly through extensive field work.

Phillimore and Goodson (2004) argue that one of the strengths of tourism research is that it is not bound to fixed disciplinary boundaries with their associated methods, and is therefore free to combine a range of approaches and even research hypotheses to give a more fluid approach to research.

Freedom has been taken in research work to investigate the area with no fixed method or particular way of working. It is understood and acknowledged that it gave immense pressure and challenge to combine recommended research techniques along with an open- ended field work policy. Therefore, this study is a reflection of both literature-based further research, enquiry of future developments and judgment of local people what to do in the area of sustainable tourism. Enquiry then went further to find the central role of architecture in sustainable tourism from both theoretical and industry perspectives.

4.2 Research Type and Design

This exploratory research aspired to assess the possible tourism development, trend and its impacts in Cox's Bazar society and find out the way to make it sustainable in terms of built form.

The design of the research was primarily based on phenomenological qualitative research where descriptive, reflective and interpretive views were presented about the circumstances through interviews and perception study approaches. Thus, the research broadly focused on a qualitative approach while also using some quantitative information to corroborate the findings.

The study approached the adjacent permanent local residents, visiting tourists (domestic and international), small business owners, park rangers, archaeological activists, guides and cross-sectional experts from public offices and civil society, who seem to be concerned about the unplanned growth of tourist facilities in Cox's Bazar focusing their particular concern on built activities without proper architectural reasoning being materialised.

The study area was approached using a structured questionnaire. The form of the questionnaire was both closed and open-ended for the local residents and other users. The open-ended questions enquired about the impacts of tourism being felt by the residents and users from their every day experience of life. The study also required suggestions from local users and other stakeholders of tourism as to what should be done to address the current lack of build activities. The answer came in different ways and forms but planned architectural activities were focused on as a central issue in future built activities in Cox's Bazar.

The response of the dwellers were cross-checked with the opinions of the specialists who were public and private (including non-government organisations and the civil society) officials having concern and responsibility to speak on impacts of tourism in Cox's Bazar. An open-ended questionnaire (Appendix C) was administered to find distance difference and consensus between local users and officials within the sector. No doubt it brought to light some contradictory issues, cross-sectorial ideas and even hidden realities of the entire tourism sector, inherent planning weaknesses, unsettled central and local government planning and

failure to focus on priority-based built activities (the marine drive from Cox's Bazar to Tecknaf is the single largest example of failure to practise).

To be objective and authentic in the process of research on tourism's impact and future in regard to Cox's Bazar, which was selected as a control variable yet to see any architectural touristic development. Kolatoli, an adjacent locality near the main beach, and Laboni point, the main gathering area of tourists, were instantly selected for administering the questionnaire. Many local people as well as the tourists gather at these sites and 32 (20 local residents and 15 tourists) persons were chosen randomly to conduct a focus group discussion for the control variable. It was quite effective and every person participated and expressed their feelings while answering the questions. One relevant aspect was that it would be unwise to expect all the residents and other users to be well-educated and thus quick in their response to the queries. So the control group was the intervening medium to cross-check and explore the impact of tourism in Cox's Bazar and thus prevent the respondents from being over-speculative and subjective in their response.

Therefore, as a researcher, my prime task was to explore the problem by looking into the impact of tourism in a systematic and coherent manner and also to enquire about the issues to be addressed which could effectively bridge the current gap with planned architectural activities by focusing proper future requirements when it comes to exploring the site.

4.3 Data Collection

One month was spent in order to collect data using qualitative methods including participant observation, semi-structured interviews, key informant, secondary sources and a household survey instrument, which was used to collect the majority of the data presented in this paper. The first section focused on respondent characteristics and standard household data. The final sections of the survey were designed to obtain information on local perception of tourists, tourism and general conservation values associated with desired built activities. The survey, which was conducted as a face-to-face interview by trained local research assistants, took roughly 20-25 minutes to complete and was pretested with random respondents upon arrival in Cox's Bazar.

4.3.1 Methodological Limitations

It is common for researchers to find themselves visiting a country with pre-prepared surveys in hand, in their study of defined community selected objectives, with every minute of their time and penny of their budget allocated. Despite careful preparation involving secondary sources, consultation with colleagues, and contact with local decision-makers and key informants, and pre-testing of the surveys, it is not always possible to fully anticipate a fieldwork scenario until one is immersed in it. In view of this, ethnographic fieldwork always includes an element of the unexpected. It is therefore essential to incorporate flexibility into ethnographic studies and recognise that the original intent and questions of the research may not be as relevant as was first expected.

The challenge associated with this unpredictability lies in the exchange between being fully prepared and being adaptable once research commences. This is particularly challenging in relation to strict budgetary and time constraints, where changing an approach may require additional time or resources. Survey questionnaires are also inherently inadaptable if they are to be used to collect data amenable to statistical analysis, which means that, for exploratory studies such as this, the questions need to cover a wide range of topics. Here there is another trade-off between asking a small number of simple, targeted questions, resulting in a short survey, and asking more questions and allowing for open-ended responses, resulting in a more lengthy and complicated survey. However, the latter allows for a more exploratory approach during the analysis and interpretation of that data. That approach in itself incorporates an element of adaptability into survey research.

The local surveys used for this research were longer than the ideal 15 minutes, which is the period after which respondents tend to lose focus and interest thus decreasing the reliability of their responses. However, extending the survey time to 20-25 minutes was considered necessary to obtain an adequate amount of information for such a broad study. All respondents were always given the option of completing the survey at another time. This approach, coupled with the time spent in the community generating interest and familiarity with the project prior to conducting the surveys helped limit the problems associated with having a long questionnaire.

Another criticism of survey research that demands some discussion is the difficulty

associated with determining if respondents are giving prejudiced responses. This is especially relevant for this study dealing with tourism, which is a source of income for many of the respondents of the survey. In this context, it makes sense that they may have hesitant feelings about portraying tourism in a negative light regardless of their true opinion. It is argued here that, assuming this reality is properly recognised and accounted for in the interpretation of the data, a prejudiced and non-prejudiced response means the same thing from a practical standpoint. People make the majority of their decisions on the basis of perceptions, beliefs and attitudes. Regardless of whether their responses are prejudiced or not, the likelihood is that the resulting behavior will be the same.

The limitation of Cox's Bazar town sample was discussed previously. Another sample-related limitation of this study is the small number of study communities. Again, working within the constraints of project resources, there was a trade-off between sampling more communities and the amount of time allocated to working in this community.

4.4 Sample size, characteristics and selection criteria

This study was conducted in Cox's Bazar town and adjacent localities. A sample of 10 officials from different offices as experts or key informants were selected previously considering their level of involvement with tourism through an open-ended questionnaire in August 2010. It is worth mentioning that a few officers did not want to give their interviews on personal grounds and respecting their confidentiality those names are not stated in this discussion.

In order to achieve a 95% confidence level, and a 5 % sampling error of the present study, the required sample size was approximately 400 respondents. As theory goes, by increasing the sample size to around 500, the overall predicted sampling error could be decreased to below 5. But considering the length of research time (one year), the manageability of the data and its processing, the financial burden involved in going to the study area for data collection and the necessary scrutiny of the statistically required sample size was not taken. It should be mentioned that the present research work is not assisted by any research grant from any source, totally to be borne by the researcher himself. – is this relevant? Against this backdrop the sample size taken for this study is only 60 (the minimum threshold level to validate any social research is 50) residents of the study area. To validate the research, the key informants

(10 officials) and control variables (20 participants from Kalatali, 15 tourists, 15 industry representatives) were taken to corroborate the findings of the research (figure 4.1).

Most of the local respondents (60%) were between the ages of 30 and 50. Measures were taken to ensure all samples were random. In smaller communities, households were selected by choosing a random starting point, following a predetermined path to Kalatali that covered the entire community. While conducting the survey in the communities, researchers alternated between households on different sides of the street and between houses adjacent and set back from the road. Effort was also made to ensure adequate representations of gender and different age groups in the household samples. All adult members of the household were approached. Some of them refused to take part in the interview. The interviews were taken in August 2010, which is the low tourist season in the city. Surveys were conducted at different times of day to ensure working and non-working members of the households had equal chances of being present. Residents had to have resided in the community for a minimum of five years in order to be selected.

Preference was given to interviewing fishermen and tour guides during the random household surveys. Being supplemented by key informants and control variable data numbers of the local residents (sample size=60) appears to have represented the population quite well, at least in terms of the diverse socio-demographic profile of respondents, which is presented in Figure 4.1.

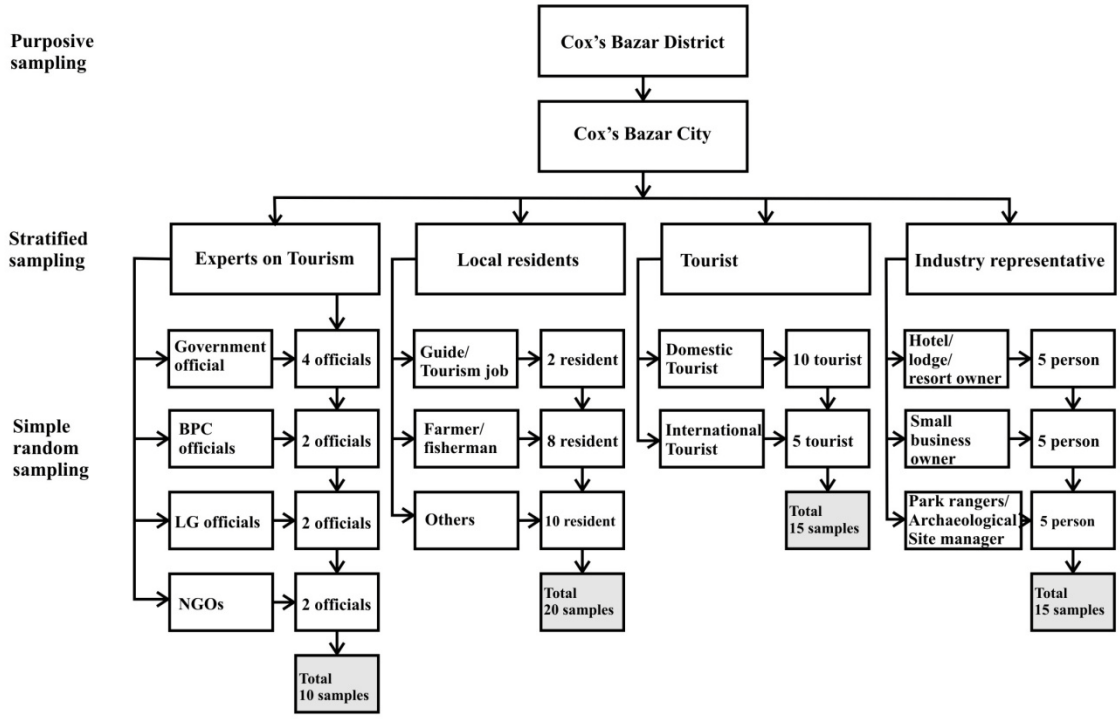


Figure 4.1: Sample method and procedure

4.5 Designing the Questionnaire

Careful consideration has been given while questionnaires were being prepared and set to conduct the survey among local residents and other users in order to ensure the entire coverage of the study area and conform to research objectives. Local communities or residents definitely feel the impact of the ongoing tourism development in Cox's Bazar and they could therefore be a very reliable source of information about how they desire that tourism should be developed and to what extent the surrounding community would remain friendly to tourism development. Keeping this in mind a six-part questionnaire was distributed among local community people, floating tourists, Government officials and business owners of the study area.

Designing the questionnaire for the residents was a vital work. The first section of the questionnaire drew basic background data (Appendix C) on address, marital status, gender, household size, education, age, occupation and annual income of the local respondents and floating tourists. The second part asked three open-ended questions which had emerged

through the identification of the main issues found by past research dealing with residents' attitudes, theoretical understanding and advanced understanding of tourism development in popular coastal tourist destinations described in Chapter Four. To ensure the validity of the survey instrument, experts were asked to judge if it covered the range that they would expect and a review of the literature was undertaken to identify different aspects of the concepts under investigation.

4.6 Content Analysis

The study incorporates different types of social research for collecting and analysing information and data (written and oral, gathered from floating tourists near beachside hotels). Content analysis is a well-established research methodology commonly used in social sciences to analyse communications (Holsti 1969). Over the past two decades, content-analysis research has remarkably benefited from the exponentially increasing volume of electronic data, including articles in general media databases, communications in virtual communities, and textual and pictorial materials from websites (Neuend 2002; Rainer and Hall 2003; Romano et al. 2003; Wickham and Woods 2005). A growing number of tourism studies employ qualitative data interviews, open-ended questions and subsequently, content-analysis techniques to discern meaning from this wealth of textual material. The current and recent publications were analysed thoroughly for finding out more about impact (both positive and negative) and sustainability of tourism in line with the present study.

This research was conducted by involving both primary and secondary data and information available in this study area along with selected case studies and on the projected site, Cox's Bazar.

4.7 Data Gathering Procedure

Survey methods were used to approach the local residents, experts and other stakeholders using both a closed and open-ended questionnaire format.

4.8 Data Analysis

The data obtained from the surveys were used to conduct a series of statistical analyses to detect trends and significant differences in attitudes among the study area. Findings of the experts' opinion on tourism impact from primary data were analysed qualitatively and the residents', small business owners' and archaeological activists' perception on the impact of tourism in Cox's Bazar were presented quantitatively.

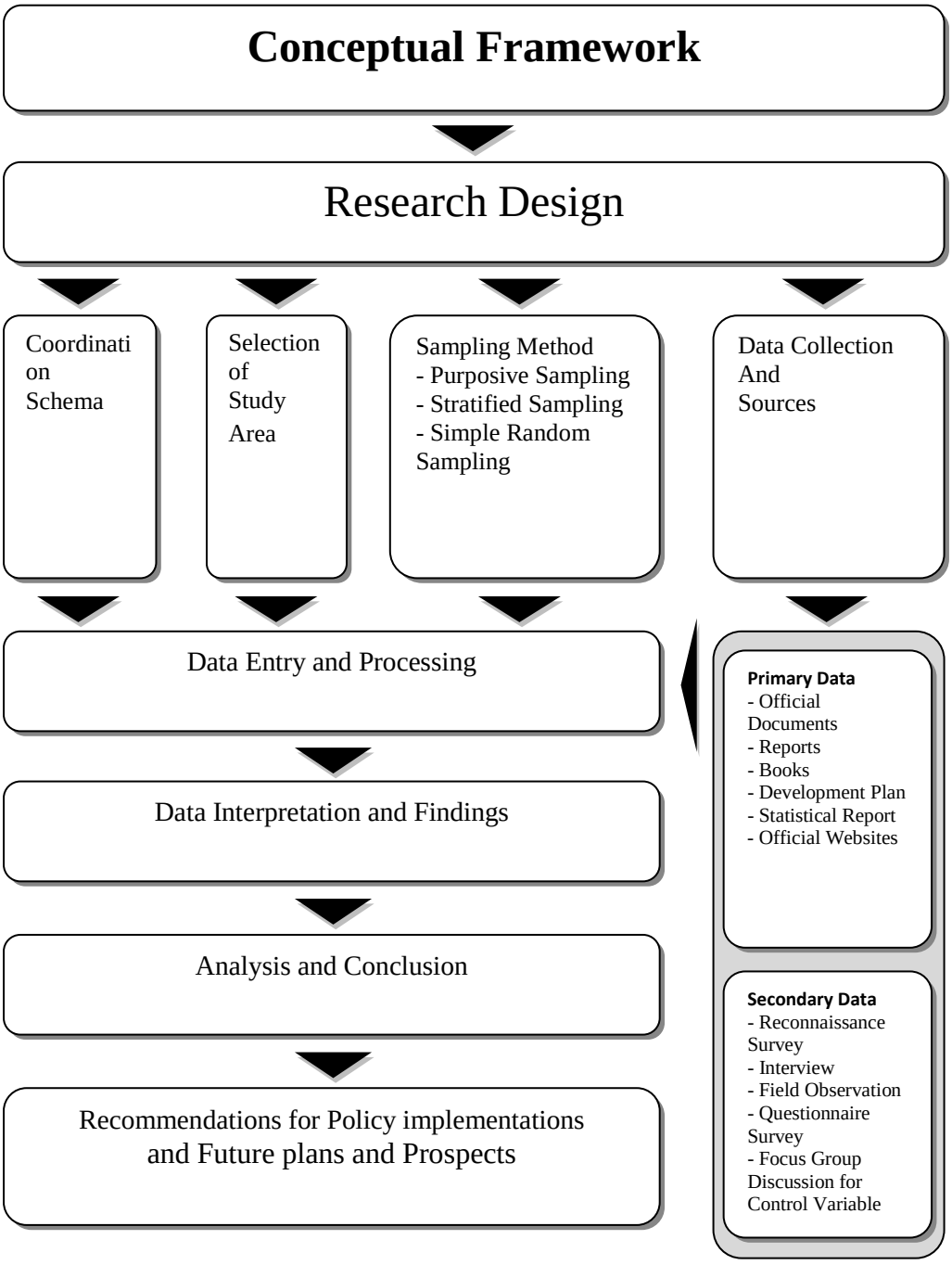


Figure 4.2: Research design framework

4.9 Study difficulties

The research has several strengths as sufficient literature and data were found available both off and on line. Comparative studies can be seen as a good source to assess tourism spots across the world. But the study was limited in its scope and nature, particularly because the research itself encountered (until this stage) a lack of a proper database of research documentation in government departments, unavailability of recent and regular reports on the tourist population in Cox's Bazar and an absence of a coordinated master plan to develop the tourist city.

During the researcher's effort to gather field level information on selected spots and other governmental departments, it seemed that the accuracy of data was not certain and often cross checks resulted a difference in numbers, figures and statistics.

The lack of proper academic understanding on sustainable architecture in terms of sustainable tourism was a practical restraint to formulate an academic questionnaire.

As Cox's Bazar has been selected as a projected case study to focus sustainable architecture to promote sustainable tourism, it was felt that formulating a practicable hypothesis was quite difficult. Until this stage, a projected case study based on academic scholarship and industry experience seemed challenging but not impossible or impracticable. During the primary data collection it was challenging to gather proper data and support a cross-check mechanism.

4.10 Summary

The chapter focused on the research philosophy, pattern of field work, target area of research and data collection method. Planning deficiencies have been highlighted in this chapter from local perspectives. Difficulty in gathering research based data in town expansion has been encountered throughout the field work. The chapter outlined the research pathway and gave a detailed picture how the study went on. It emphasised on local knowledge rather than theoretical aspects of the area of study although the later was addressed appropriately in other chapters.

CHAPTER 05: CASE STUDIES

5.1 Introduction

The chapter focuses on existing sites like Langkawi Island in Malaysia, Hidden Valley in Belize and the Greek islands of Mykonos and Santorini, where architectural activism plays a role of paramount importance to tourism sustainability. This chapter also investigates the direct benefits, if any, from coherent architectural installations in the selected tourism destinations of Malaysia and Belize, besides the Greek islands of Mykonos and Santorini. Hidden Valley Inn, a small luxury eco-lodge located on a 7,200 acre private reserve in the Maya Mountains of Western Belize, represents a successful combination of both nature and harmoniously built structure.

Greek islands of Mykonos and Santorini tourist destinations have been chosen in particular as regards planning, architectural coherence, disaster management, built structure and impacts, pollution, collision and harmony with the local culture, social integrity and future plans. The special reason to choose these islands is alleged blame on over development of structures while unprecedented flood hit the area in 2009. Cox's Bazar faces the same or similar difficulty as it is overdeveloped in main tourism spot, particularly within closed vicinity of sea beach. The impact and sustainability of tourism will be elaborated upon here, especially where architectural presence was and where it was not a central component, and the way it made a difference in relation to sustainability.

Similarly to the preceding chapter, this chapter also shows where man-made architecture takes pride of place alongside nature-made tourist attractions. It will be contrasted to the situation in many tourist destinations of the world where it is now an accepted fact that a lack of proper accommodation is one of the main barriers in exploring the potential of the site. In this regard, Cox's Bazar, our area of study, may be an appropriate example of a site where nature has seemingly paved the way for the development of sustainable tourism, but instead, architectural reasoning is largely being ignored in town planning and expanding tourist installations.

This chapter leads into the next chapter where a projected case study of Cox's Bazar shows a future rapid change of its tourism landscape, along with an exploration of its economy and socio-cultural sustainability in the whole southern region. This is based mainly on the eco-lodge zone and other key installations featuring a combination of hilly forest land, the sea

beach and a river on the one side, and the area's unique cultural heritage on the other.

5.2 Case study: Langkawi Island, Malaysia (The Island of Legend)

5.2.1 Tourism Development on Langkawi Island, Malaysia

Research shows that tourism has become Malaysia's third largest source of income from foreign exchange. The majority of Malaysia's tourists come from its bordering country, Singapore. It stands amongst the top countries in terms of providing a first class tourist infrastructure. The Malaysian government has been spending more than 86 million US dollars from its annual budget every year for tourism promotion. In 1999, the country launched a worldwide marketing campaign called ***Malaysia, Truly Asia*** which was largely successful in bringing in over 7.4 million tourists. The extra revenue recently generated by tourism helped the country's economy during the economic crisis of 2008.

Figure 5.1: Langkawi Island, Malaysia.
Source: http://mesmerizingmalaysia.blogspot.com/2008/06/langkawi-island

Langkawi, "The Island of Legend", is located between Sumatra and Western Thailand, at the northwestern Malaysian peninsular. Comprising a group of 104 islands, the biggest being Langkawi, the Island is one of the top tourist destinations in Malaysia with its legendary history, rural picturesque scenery, modern facilities and hotels, and its pristine natural heritage as well as enchanting cultural heritage (Chan and Ooi, 2008). Langkawi Island

(65,202 sq.km), Dayang Bunting Island (501 sq. km), and Tuba Island (3,894 sq.km) are the only three inhabited Islands of Lankawi (Badaruddin & Jusoh, 200-.).

Most of the development is centered in the main town of Kuah and in isolated beach resorts dotted around the coast. The airport is located on this island as well as hotel resorts, restaurants and shops. The two main beaches, Pantai Cenang and Pantai Kok, are on the island's western coast, with Pantai Cenang being the most popular venue for hotels and restaurants (Badaruddin & Jusoh, 200-.).

Langkawi contains many diverse habitats including tropical rainforests, mangrove forests and coral reefs. It has interesting geological features with its two high peaks: Gunung Raya (the tallest at 894m) and Machinchang. Being 520 million years old, it is the oldest granite rock formation in Southeast Asia. Langkawi still has about 50% cover of tropical rainforest. A total of 183 species of exotic birds, 130 species of migratory birds and 35 species of orchids have been recorded so far in Langkawi (Langkawi Nature Society (LNS). Machincang Cambrian Geoforest Park, Kilim Karst Geoforest Park and Dayang Bunting Marble Geoforest Park (Island of the Pregnant Maiden Lake) are the most popular tourist areas within Langkawi Geopark (Badaruddin & Jusoh, 200-.).

Table 5.1: Comparison of tourist arrivals: Malaysia and Langkawi

Country of Residence	MALAYSIA	Langkawi (Distribution %)
SINGAPORE	12,733,082	40958 (32 %)
THAILAND	1,449,262	43142 (3 %)
CHINA (INCL HONG KONG MACAO)	1,019,756	32070 (3.1 %)
JAPAN	395,746	25186 (6 %)
INDIA	589,838	25558 (4.3 %)
UNITED STATES OF AMERICA	228,571	23794 (10.4 %)
AUSTRALIA	533,382	56709 (10.6 %)
UNITED KINGDOM	435,091	93415 (21.5 %)

Source: Statistics from LADA, 2009

5.2.2 Tourism Policy

The role of the Malaysian government in promoting sustainable tourism is evident in the existing legal and institutional framework. There is evidence that indicates that Agenda 21 has been adopted in the national master plan. To speed up the development of the tourism industry, the Malaysian Tourism Policy was formulated in 1992. The policy had identified ecotourism as one form of tourism to be expanded and sustained. It was followed by a more specific national ecotourism plan three years later. The National Ecotourism Master Plan was drafted in 1995 and was accepted by the government in 1996.

Already in 1990, the Federal Government had set up the Langkawi Development Authority (LADA) to develop the island as a tourist destination, as well as to improve the socio-economic standard of the local people. Langkawi's development is spelt out in the Langkawi 5 Year Development Plan. The strategy entails a combination of inland development such as providing new facilities while preserving the development of the coastal area, as tourism continues to lead as the island's key economic sector. LADA's responsibilities cover improvements in water and electricity supply infrastructure, road networks, airport facilities, housing, and tourist attractions. The main development activities are currently located in the chief towns of Kuah (the sea gateway to the island), Padang Matsirat (the air gateway) and Padang Lalang. The coastal locations identified for development are Kuah, Pantai Cenang, Pantai Tengah, Pantai KoklTelok Burau, Telok Datai and Tanjung Rhu. (Jusoh, J., Mohamed, B., Puad, A., Som, M. & Kong, W., 2006)

Figure 5.2: Langkawi Island

Source: http://mesmerizingmalaysia.blogspot.com/2008/06/langkawi-island

5.2.3 Architectural pattern and built form

Research shows that huge investment has been made by the Malaysian government to increase Langkawi's standard as a World Tourism Island Destination. With so much modern infrastructure and public facilities, it seems that the vision of this tourist island can be sustained over thousands of years through a mixture of original (natural) products and man-made products.

Langkawi is well known among the tourists and hotel guests for its first class service facilities. Even though it has been 20 years since it was declared as a Duty Free Port, various kinds of first class accommodation are being provided there. There are more than ten luxurious resorts and 25 middle-cost resorts and budget chalets in Langkawi which also provides the following supporting facilities:

a) Medical Services b) Transport and Tour services c) Recreation and sport facilities d) Business and Financial Centeres e) Conferences and Events

Billions were spent to develop the Underwater World at Pantai Cenang, the Langkawi Coral Reef platform at Pulau Payar Marine Park, and the Crocodile farm. Another of its biggest

resort development projects is the one billion RM Floating Village at Kuala Muda in Padang Matsirat which provides more than 7,5000 hotel rooms (Mill, 2001).

All resorts are sensitively designed to suit local conditions. Their selection is important: besides being designed in the vernacular style, each resort is selected based on its uniqueness in terms of style and location.

Considerable investment has been made by local and multinational companies leading to the construction of luxurious resort projects in Langkawi. Resort settings are at areas which are associated with establishing profitable and ecologically sustainable industries, while simultaneously achieving a safe and satisfying experience for the visitors and raising the living standard of the local community. According to Tan (2001), the World Travel and Tourism Council predicted that the Asia-Pacific region would contribute about 25% to the world's travel market. Tourism in Malaysia, especially after 1990, was expected to be popular and most of the developments focused on traditional resorts (Mohamed, 2002).

Figure 5.3: Detailed map of Langkawi

Source: http://mesmerizingmalaysia.blogspot.com/2008/06/langkawi-island

5.2.3.1 Case Study of the Resorts

Three luxurious resort buildings in Langkawi were chosen for the case studies. They are:

a) Berjaya Langkawi Beach and Spa Resort

b) Pelangi Beach Resort Langkawi

c) Kampung Tok Senik Resort

5.2.3.1(a) Berjaya Langkawi Beach and Spa Resort

Berjaya Langkawi Beach and Spa Resort features a simple vernacular style with its prominent roof form which adopts the traditional roof form in Peninsular Malaysia. All the

chalets are built on stilts several metres above sea level on the hilly slopes along the beautiful Burau Bay (Figure 4.4). The chalet design has simplified the typical Malay home architectural character, whose buildings are individually designed to fit harmoniously into their surroundings. With its dominant roof form the chalet was designed without decorative elements. It uses a basic timber construction. The site location of the chalets is determined on site to avoid unnecessary tree cutting (Emalgalfta, Hassan, & Ku 2010; Nasir & Wan The, 1996; Mohamed, 2002).

Figure 5.4: Berjaya Langkawi Beach and Spa Resort
Source: Emalgalfta, A., Hassan, A.S., & Ku Hassan, K.A. 2010

5.2.3.1 (b) Pelangi Beach Resort

Pelangi Beach Resort is located on the western coast of Langkawi and presents quite a contrast to the traditional Malay house form: the wooden chalets are raised less than one metre high (fig 4.5). It is different from typical traditional Malay houses by having two-storey chalets and the main architectural focus of the building is its prominent complex roof. The chalets feature a complex vernacular style situated in a tropical landscape. There are plenty of coconut trees, playgrounds, courtyards, pergolas, bridges, lakes, fountains, swimming pools, and waterfalls inside the resort complex, along with a natural sandy beach to the west. This resort offers a luxurious resort lifestyle in a Malaysian village setting (Emalgalfta, Hassan, & Ku 2010; Nasir & Wan The, 1996; Mohamed, 2002).

Figure 5.5: Pelangi Beach Resort

Source: Emalgalfta, A., Hassan, A.S., & Ku Hassan, K.A. 2010

5.2.3.1 (c) Kampung Tok Senik Resort

Kampung Tok Senik Resort is located in a hilly area (Fig

ure 4.6) surrounded by a vast paddy field in the central part of Langkawi. This resort has detached, semi-detached and terraced chalets built in the old traditional style with a backdrop of paddy fields. The idea was to reproduce a typical setting of Malay villages and house forms located in a charming landscape. The resort layout is dictated by the natural landform of the site (Emalgalfta, Hassan, & Ku 2010; Nasir & Wan The, 1996; Mohamed, 2002).

Figure 5.6: Kampung Tok Senik Resort

Source: Emalgalfta, A., Hassan, A.S., & Ku Hassan, K.A. 2010

5.2.4 Urban fabric

Langkawi can easily be accessed by air and sea. In the north, it can be accessed from the Kuala Pedis Jetty which is 30 km from Southern Thailand. This route can accommodate tourists from all over Malaysia and other Asian countries such as Thailand, Cambodia, Vietnam and the Philippines.

According to Emalgalfta, Hassan, & Ku (2010) almost 95% of the island's area is covered with first class roads with the main route connecting tourist and commercial centres. These areas can be connected to the "in and out" gateways to the island. The major airport development started in 1985. Further improvements to the terminal building and parking areas were made in 1991 to enable the island to be the venue for many international exhibitions.

Systematic ferry services and a good carrying capacity even in peak seasons is another added advantage to the transport infrastructure services on this island. Jetty and harbour facilities provide access to the island for domestic and international tourists. Besides having a jetty for tourist boats, there are also jetties for exclusive boats in private harbours (Belisle & Hoy, 1980; Liu & Var, 1986; Long, Perdue, & Allen, 1990; McCool & Martin, 1994, Badaruddin & Jusoh, 200-.).

5.2.5 Impacts of Tourism

Nowadays tourism is the main source of income for the people of Langkawi. The islands of Malaysia continue to be developed into tourist spots, attracting a continuous number of arrivals. Luxury bungalows and resorts have quickly developed along the coastlines and islanders who used to be fishermen have discarded the nets for more profitable, similarly seasonal work in the tourism sector. Boatmen now take tourists around the islands; some have become guides or are running boat or fishing gear rental businesses. Fishing boats have been modified and turned into leisure craft that take tourists for night fishing trips or snorkeling. It is becoming increasingly evident that tourism has brought dramatic changes to both the social and physical environment of the islands in Malaysia.

Tourism’s negative impact, however, includes forest destruction, changes to the shorelines,

sea pollution and damage to the corals (William & Shaw, 1991). In Malaysia, by the same token, the decreasing number of visitors to the once-popular Lake Kenyir was reported to be linked to the fact that overdevelopment around the lake had created eyesores and eventually pushed them away. In 1999, Lake Kenyir received 114, 782 visitors, while by the year 2005, the number had decreased to around 15,000. The concentration of a mega-infrastructure and resorts along the lake's coast has caused major destruction to the mangroves, beaches, and lagoons through sand mining and direct discharge of sewage from the development (Wilkinson, 1989).

Destruction to the island's ecological environment can also be the result of the development of an extensive infrastructure comprising jetties, resorts and airports. A recent example of this is the building of twelve golf-ball-shaped luxury chalets on the marine island park of Payar, about 15 nautical off Langkawi and 32 nautical off Penang. This project received strong criticism not only for its inappropriateness, but also because it has not adhered to the basic development requirements when building in a sensitive area, such as providing a sound Environmental Impact Assessment or EIA (Salleh, 2003).

5.2.6 Findings

From the experience of Langkawi, it is evident that the tourist installations which are architecturally coherent demonstrating local uniqueness have proved viable in regard to their ability to attract tourists as well as to preserve nature. These installations are simultaneously local as well as of international standards and also free from the side effects of mega structures often found near hills and sea. The tourism grounds on the island are therefore based on a combined and carefully chosen development plan local in nature, whose architectural patterns come both from the soil and men and whose cultural projection bears its own special characteristics. Cox's Bazar, in contrast, is comparatively lacking in architectural correctness even though the town has expanded, its tourism facilities increased and new structures raised.

5.3 Case studies of the Greek Islands Mykonos and Santorini

5.3.1 Tourism Development in Greece

Greece depends largely on tourism for a major part of its Gross National Income and its islands are targeted as popular tourist destinations by a large number of tourists across Europe and America. Scenic sites, an amenable climate and unique landscape features have an important influence on tourism development in Greece. According to WTO (1991) tourism grew on such a scale that, within a short period of time, it almost tripled from 160 million international arrivals in 1970 to 430 million in 1990. 85% of the tourist movement takes place in May to October while the months when the 50% of the tourists visit Greece, are July, August and September (Drettakis, 1996 cited in Ozgen, 2003), which demonstrates the seasonal characteristics of tourism in Greece. The specific data concerns mainly coastal areas and islands, which are either specialized in foreign tourism or in local tourism, mainly in the form of summer residences (Ozgen 2003). Visitors to Greece come mainly from Europe and especially from the countries of the European Union (Germany and Britain) and, to a smaller percentage, from North America (Voultsaki, 2000).

5.3.1.1 Case studies: Mykonos and Santorini Islands of Greece

5.3.1.1 (a) Mykonos

Mykonos is known both for its stunning natural beauty and for its unusual traditional architecture (fig 4.7). Thus, not surprisingly, it has seen a dramatic growth in tourism over the past 25 years. Research shows that between 1971 and 1991 a quarter or a third of the island was taken up with the building of new tourism developments and in consequence, the accommodation stock had risen dramatically. According to Coccossis (1996), tourist numbers had risen from around 5,150 arrivals at hotels in 1965 to 60,000 in 1995.

Figure 5.7: Mikonos, Hora Town
Source: http://www.travelpod.com/travel-photo/akemim/1/1286453609/village-of-hora-mykonos.jpg/tpod.html

5.3.1.1 (b) Santorini

Its unique landscape and vernacular architecture have caused a rapid increase of mass tourism during recent years on the Greek Santorini islands. The basic building features like solid volumes, thick masonry walls with small openings, whitewashed plaster skin covering almost everything with an integrative power, and the creation of composition through continuous repetition and make it a popular tourist destination. All these elements have produced a kind of organic urban and building form, skillfully using the locally available resources, and at the same time imprinting social evolution through time. Special attractions include the excavation site in Akrotiri, the islets of New and Old Kameni and local religious events (Ozgen 2003).

Figure 5.8: Santorini, Oia Town, Small Houses
Source: http://www.sightseeingtours.co.uk/britain_uk_england_tours/mykonos-greek-islands-tour.htm

5.3.2 Architectural pattern and built form

Santorini features a geometric typology of the built structure consisting of prisms, cylinders and domes, all covered by a continuous plaster membrane featuring a striking simplicity of materials. The building methods have contributed to a complex uniformity in the built space. However, it also generates a unified totality with a strong sculptural atmosphere amplified by light and shadow contrast according to the hour and season. Thus, the forms acquire a arying personality, and a series of visual surprises when walking through them. The plasticity of the bold surfaces is enhanced by the rectangular or semi-circular openings. In Mikonos's Hora own, the topography is very flat in comparison with Santorini. Mykonos's buildings' details are very simple like their shapes. White color, which, as in Santorini, is dominant, gives a

feeling of simplicity. Some villages in Santorini and Mykonos still remain far from the contemporary artificial 'white and blue' idea of Cycladic architecture, thus presenting several original examples of the vernacular use of colour (available at: http://www.ntua.gr/arch/geometry/tns/santorini/#architecture).

Figure 5.9: Santorini, a typical Room

Figure 5.10: The Simplicity of Mikonos

Source (fig 5.9): http://www.greek-islands.us/santorini/cave-houses/

Source (fig 5.10): http://www.tripadvisor.com/

Figure 5.11: Mykonos, Hora Town, Adaptable usage of Buildings

Figure 5.12: Santorini, Houses and Hotel rooms

Source (fig 5.11): http://www.mykonos-accommodation.com/2-star-hotels-in-town.htm

Source (fig 5.12): mariahnsham.blogspot.com/2010/05/design-feature-streets-of-europe.html

5.3.3 Impacts of Tourism in Greece

There is little doubt that tourism has already attracted considerable attention when it comes to issues related to an island environment and particularly the development of small islands. The growing demand for tourism opens up new opportunities even for small and isolated places, contributing to income and employment for island inhabitants, but at the same time, it has a direct effect on their sensitive and unique environmental resources (Coccossis, 1987). This situation has already influenced local awareness of environmental issues especially in some cases where the expansion of tourism was rapid and intensive.

Santorini and Mykonos already present some symptoms of saturation which includes congestion, lack of parking space, insecurity and water and soil pollution, especially during the peak summer season. Evidence shows that the limited natural resources of the islands are insufficient to cope with the competing demands placed on these resources as a result of uncontrolled tourism development (Ozgen 2009).

Last year's (2009) devastating and unfamiliar flood on the tourist islands made the issue of over-development and indiscriminate built structure of the last two decades more relevant. It was particularly criticised that over-development caused greater damage to the soil and water level of the locality and the necessity of balance was not given any attention.

5.3.4 Findings

The example of these two islands has created an unfettered need for desirable balance between the expansion of tourism and preservation of local natural resources and possibly a cap to prevent uncontrolled development and an overwhelming size of tourist population where it outnumbers local population in the peak season. But an ongoing debate probably will never cease as the accompanying development of a growing need for expansion and careful use of technology thereby causing less harm to the environment.

5.4 Case Study: Belize: Eco-lodge and Cruise tourism as central and operational attractions; a study from a built structure perspective

5.4.1 Tourism Development in Belize

Tourism is Belize's number one foreign exchange earner, followed by marine products, citrus, cane sugar, bananas, and garments. In 2004, 60% of Belize's visitors came from the United States (Belize Tourism Board (BTB) 2006), many of whom attracted by its convenient location and the fact that it is the only English speaking country in Central America. The next most frequent group to visit Belize in 2004 was European (14%), followed by Guatemalans (7%), Canadians (5%), Belizeans living abroad (3%), Mexicans (3%), and other nationalities (8%).

Belize is rich in natural and cultural attractions, which include extensive rainforests and coral reefs, Mayan archeological sites, and Garifuna villages. The majority of visitors come for leisure, as opposed to business or official purposes, and many of their activities, which include scuba diving, fly-fishing, bird-watching, cave-tubing, visiting archeological sites, and hiking, occur in natural environments (Diedich 2009).

Figure 5.13: Major tourist attractions in Belize
Source: CSED, 2006

Figure 5.14: Cruise Tourism in Belize

5.4.2 Cruise Tourism in Belize

Research shows that in recent years cruise tourism in Belize has increased considerably. The growth rate of cruise visitors in Belize can be largely attributed to the opening of the Belize Tourism Village in early 2002, a terminal in Belize City specifically built to cater to cruise tourism. However, the rate has remained high in recent years at 48% between 2003 and 2004, which is still the highest in comparison with the 20 nations referenced (Diedrich, 2009 & CSED, 2006).

5.4.3 Tourism Policy

The development of tourism policy in Belize emulates the relativity late emergence of tourism as a driving force of Belize's economy. Belize's first tourism study was carried out in 1961 by the New York consulting firm Stanton Robbins and Co. Ltd. The current Belize Draft Tourism Policy 2005 (Launchpad Consulting and Russell 2005) suggests that tourism policy in Belize only really began to take shape after the country developed its first national tourism strategy in 1998. This strategy resulted from a study, commissioned by the Ministry of Tourism and the Environment in Belize, undertaken by the Blackstone Corporation of Toronto, Canada, in association with Help for Progress, a Belizean non-governmental organization.

The "extraordinary increase" in cruise tourism and its subsequent impact on Belize's natural attractions is the first change that is referenced in current draft tourism policy. In fact, the report warns that, because of high visitation rates of cruise tourists to the country's ecotourism sites, Belize is in danger of losing its ecotourism identity altogether and gaining the characteristics of a mass tourism destination (Diedrich, 2009 & CSED, 2006).

5.4.4 Architectural pattern and built form: A small luxury eco-lodge

A small luxury eco-lodge located on a 7,200 acre private reserve in the Maya Mountains of Western Belize has won the Caribbean region's premier award for environmental excellence (fig 4.17).

Figure 5.15: Award winning Belize Tourism Installations.
Source: http://www.therealnicaragua.com/vb/forums/showthread.php/10827-earthbag

5.4.5 The impact of tourism in Belize

Belize has been slow to gain recognition as a tourist destination as compared with its neighbours. In 1991, Belize only received 86,700 visitors, while Jamaica had 844,600 and Cancun alone had 1,432,400 (Caribbean Tourism Organization (CTO) 2006). However, by 1998, tourism had more than doubled to 176,100 visitors and it accounted for 17.5% of the Gross Domestic Product (GDP), generating approximately one in four jobs, and 25% of total foreign exchange earnings, establishing it as Belize's largest contributor to economic growth (Blackstone Incorporated 1998). The latest estimate from 2004 shows tourist arrivals had risen to 230,832, contributing to 15.4% of Belize's GDP, and remaining the largest earner of foreign exchange (Launchpad Consulting and Russell 2005).

Due to the massive increase in tourist arrivals in Belize, this situation has created a huge economic, environmental and socio-cultural impact. As a result, Belize is becoming a mass tourist destination rather than an eco-tourist site. For example, cruise tourism is only one of a

number of threats to the Belize Barrier Reef. The growth of tourism in Belize has resulted in the fact that many coastal communities are in varying stages of a socio-economic shift from dependence on fishing to dependence on tourism.

5.4.6 Findings

From Belize's experience, we can conclude the following:

- Sustainable tourism: much depends on architectural coherence and environment-friendly tolerable built structure.
- Eco-tourism does not need large installations that place stress on nature, create pollution and place a burden on the local landscape.
- Medium of interaction (Language Education) of the local population can comprise an important element of sustainability.
- Participation of trained, motivated local people plays a vital role in sustainability.
- In Cox's Bazar, as our projected case study, we will investigate from which perspective it misses the essential conditions required by the Belize model to achieve sustainable tourism.

5.5 Summary

This chapter encompassed a detailed report on selected tourism sites where their coherent architectural features comprised the central part of tourism in these regions. It also identified future prospects in the pattern of built activities which could have a similar application in Cox's Bazar's beach installations. From the examples given above of three separate sites, this chapter made some practical suggestions while promoting a new theory of how to achieve sustainable tourism through its usage and development of both sustainable and vernacular architecture. The issue of the over-development of the Greek islands was the object of special attention and may even act as a wake-up call for tourism developers in Cox's Bazar to avoid this kind of customised overdevelopment. Further discussions will follow in the next chapter devoted to the projected case study area. It focuses on this comparatively new area of study with the aim to hopefully generate future academic debate and scholarly discourse on sustainable architecture as a possible medium of sustainable tourism.

CHAPTER 06: COX'S BAZAR'S BEAUTY IN DIVERSITY: EXPLORING A GREAT POSSIBILITY

6.1 Introduction

In the 20th century, the globalisation of capitalism, movement of populations, and advances in transportation and communication technology have helped to develop tourism into one of the world's largest industries. It will continue to grow at an expected rate of 100% over the next 10 years (Burke and Kura et al, 2001; World Travel & Tourism Council, 2006; UN Atlas of the Ocean, 2004; UNEP Division of Technology, Industry, and Economics, 2006). Globally tourism and related economic activities generate 11% of GDP, employ 200 million people, and transport nearly 700 million international travelers per year. These figures are expected to double by 2020, especially in some of the world's least developed countries.

This chapter focuses on Cox's Bazar, the longest sandy sea shore of the world in the southern district of Bangladesh. Cox's Bazar is a town named after Lieutenant Cox, who died there in 1798 after he had established a colony of Moth who sought shelter in this British territory after the conquest of the Arakan by the Burmese. Still today, two-thirds of the town's population are descendants of the Arakan refugees. Simultaneously an important fishing port and the district headquarters, with its 120 kilometer beach sloping gently down to the blue waters of the Bay of Bengal, Cox's Bazar is undoubtedly the most attractive tourist spot in the country. Miles of golden sands, towering cliffs, surfing waves, rare conch shells, colourful pagodas, Buddhist temples and tribal people, delightful seafood - this is Cox's Bazar, the tourist capital of Bangladesh. The warm shark-free waters are good for bathing and swimming while the sandy beaches offer opportunities for sunbathing. Often termed the "world's longest beach", Cox's Bazar is yet to become a major tourist destination in Asia allegedly due to lack of publicity.

Despite this fact, nevertheless, it must be noted that millions of foreign and Bangladeshi tourists visit this coastal city every year. A fair number of hotels, guest houses, and motels have sprung up in the city and coastal region and the hospitality industry is a major employer in the area. The local people are also involved in fishing and collecting sea products for their livelihood. Oysters, snails, pearls and jewelry collected and fashioned by them are very popular among tourists in the seaside and city stores. A number of people are also involved in the tourist transportation business.

Figure 6.1: Cox's Bazar's beautiful coastline, its hills and sea

Though little known or visited by western tourists, it must be noted that presently, Cox's Bazar holds an important position in the competition of the new Seven Wonders of the World's naturally beautiful locations (www.new7wonders.com/nature). The potential of the tourist sector in Bangladesh still remains unexplored by the parties concerned mainly due to poor infrastructure facilities and, it appears, the poor condition of the country as regards law and order (corruption and terrorism). In contrast, this sector in other countries is a major source of revenue, employment generation and poverty alleviation.

Despite this, it is significant that from 1995 to 2003, the number of tourist arrivals reveals a very attractive growth performance of 7.8% in Bangladesh, whereas the growth trend of tourism in India is 3.7%, Bhutan ranking 3.9 % and Nepal –1.5%, respectively. Besides, in the year 2007, the arrival of foreign tourists in Bangladesh grew by 35% from the previous year (2006), whereas in India, in the same year, it was 12.34 % (BPC, 2006). From the above analysis, it is crystal clear that the tourism sector of Bangladesh has huge potential to be an important driving force of the rapid economic development of the country. The government should, theoretically, regard it as a matter of great urgency to enrich its economy by developing its tourism sector, which unfortunately has not, so far, been able to flourish and thus could not be a significant contributory factor for the country's economic development.

Primary data gathered from a field level study and statistics show that combined and architecturally coherent town planning can, potentially, change the economic and social sustainability in Cox's Bazar. The data includes a government master plan, local town planning, foreign investment, census data, the ratio of the local population to tourists, the total number of hotels, built structures, the extent of sea view, fisheries research, access of local people to tourism resources, road planning, land and sea communication safety, disaster management policy, the ratio of local tourists to those from abroad, the government's policy paper for eco tourism and interviews from a cross section of people linked with the tourism sector in Cox's Bazar. The results of the investigation summarised in this chapter further

covers the research method employed, field techniques and data analysis and the research conclusion.

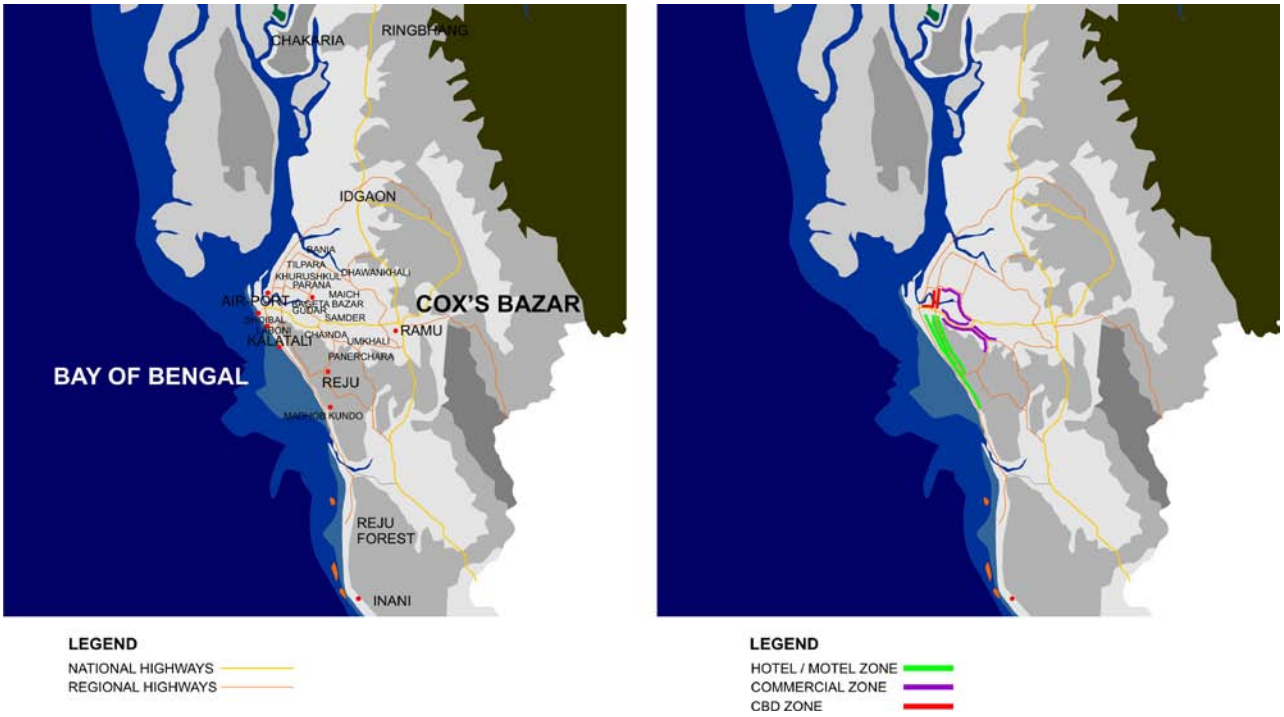


Figure 6.2: Land use pattern of Cox's Bazar

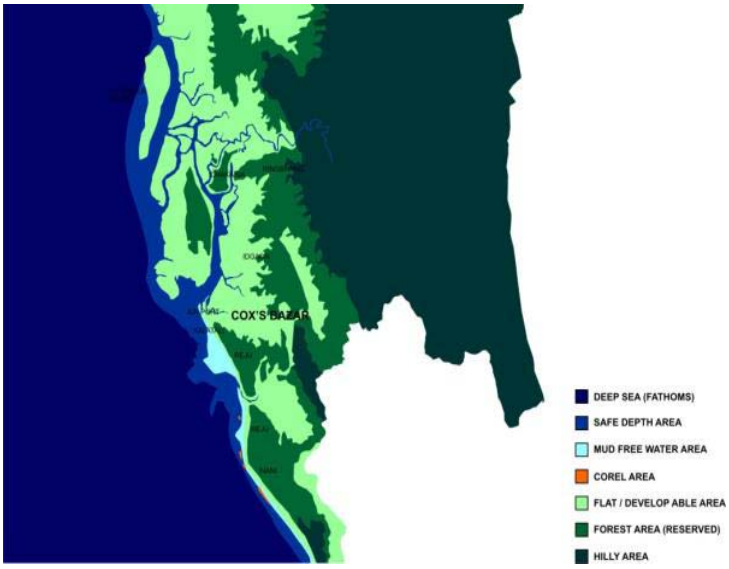


Figure 6.3: Topographic map of Cox's Bazar

6.2 Attractions

The year-round attractions of Cox's Bazar include Aggmeda Khyang, a Buddhist monastery in the hills; the Himchari picnic spot about eight kilometres from Cox's Bazar; Innani Beach, 32 kilometres away from the city; Sonadia island with very little human visitation; Teknaf peninsula, about 80 kilometres from town; and the picturesque St. Martin's Island to the south at 13 kilometres distance from the mainland. All of these places are easily accessible from Cox's Bazar by bus, jeep and water. As a result, Cox's Bazar has become a hub of tourism.

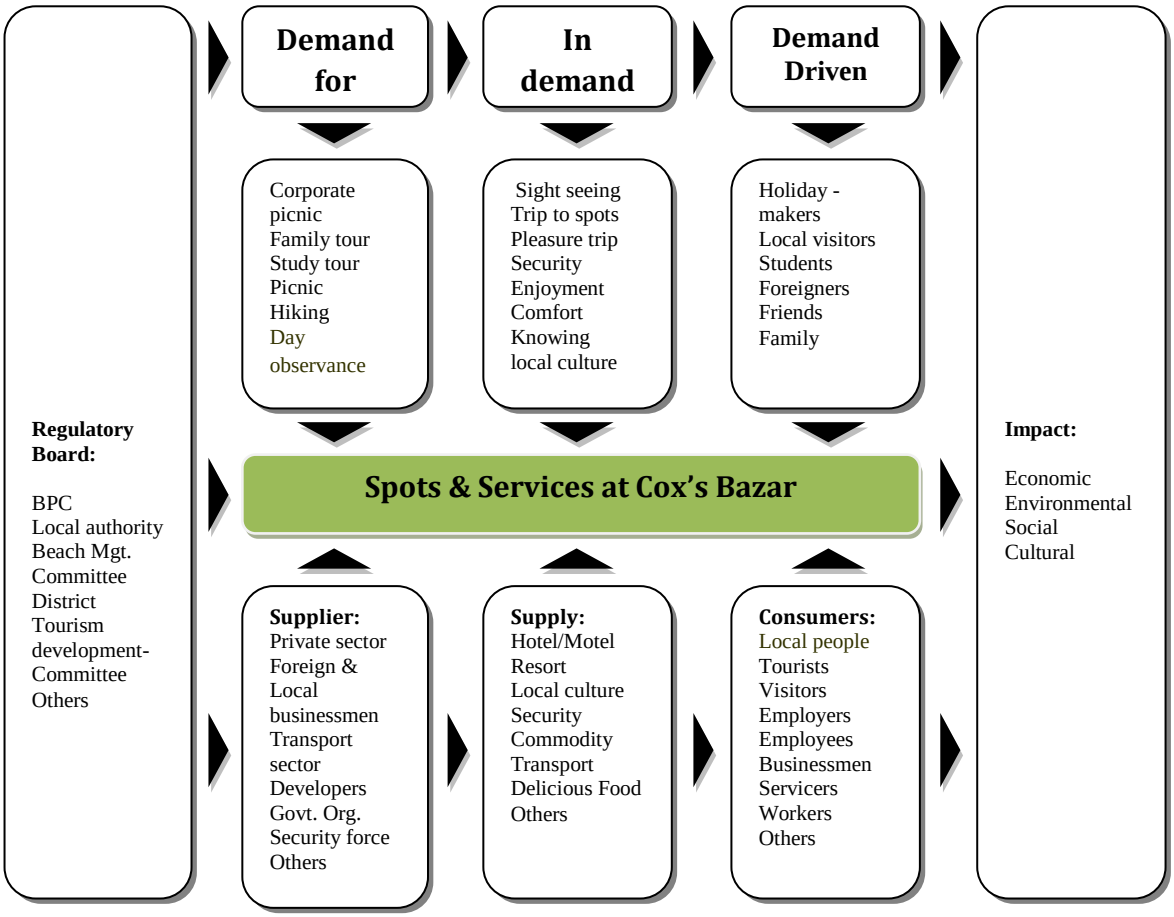


Figure 6.4: Sports & Services at Cox's Bazar

6.2.1 Natural attractions

6.2.1(a) The Sea

Nature in Cox's Bazar depends on its proximity to the sea. The sea lies along the whole western coast of Cox's Bazar towards the extended north-south area. It has 510000 sq. km of extended shore land of shallow depth with a large variety of sea fish and bio-diversity. Saline water invigorates the adjacent coastland and similarly it also created a mangrove forest in some places. Among the endless gifts of the sea are 475 kinds of fish, including archaic fish, crabs, snails, shellfish and algae. The people of Cox's Bazar live very close to the sea and it is connected to the rest of the national and international waterways: for this reason, tourists from different parts come to visit it.

6.2.1 (b) Sea Beach

Figure 6.5: Longest beach of the world

Cox's Bazar's sea beach has a gentle slope and therefore, in low tide, the water does not spread as much as in high tide. The beach is very wide with almost plain land. In high tide, it approaches 200-300 metres towards the sea. The beach is replete with beauty inhering in the sand dunes, coloured stones, stone-chips, and pebbles which are found everywhere and is ringed by mountains and forest. Trees situated on sand dunes provide shade as well as an attractive feature and turtles lay their eggs in the dunes. The innate beauty of nature attracts both local and foreign tourists.

6.2.1 (c) Laboni Beach

Laboni is considered to be the main beach of Cox's Bazar due to the fact that it is closest to the town. Near the beach, there are hundreds of small shops selling souvenirs and beach accessories to the tourists.

Figure 6.6: Himchari waterfalls.

6.2.1 (d) Himchari

Located to the south of Cox's Bazar along the beach, this is a nice place for picnics and even for film shootings. It is famous for its stunning waterfalls. The road to Himchari runs by the open sea on one side and hills on the other which makes the journey to Himchari breathtaking.

6.2.1 (e) Enani Beach

Likewise south of Cox's Bazar, this white sandy beach is located within Ukhia *Thana*. This beach is famous for its golden sand and clean shark-free water which is ideal for swimming. Most tourists prefer to come here to relax because it is free from the crowd of tourists usually seen on Laboni beach.

6.2.2 Archeological sites

6.2.2 (a) Aggmeda Khyang

A large Buddhist monastery, this place is revered by around 400,000 Buddhists living both in Cox's Bazar and in the surrounding Chittagong Hill Tracts. As pictured here, a series of round timber columns props up the main shrine area. It has a prayer chamber and an assembly hall along with a repository of large and small bronze Buddha images and a number of old manuscripts.

6.2.2 (b) Ramu Village

Situated 10 km from Cox's Bazar, Ramu village is famous for its handicrafts and homemade cigars. There are monasteries, *khyangs* and pagodas containing Buddha images cast in gold, bronze and other metals inlaid with precious stones. One of the most striking of these temples is on the bank of the Baghkhali river. It houses not only interesting relics and Burmese handicrafts, but also a large bronze Buddha statue measuring thirteen feet high resting on a six feet high pedestal. The wood carving of this *khyang* is very delicate and refined and the village certainly has a charm of its own.

Figure 6.7: Buddhist monastery, Aggmeda Khyang

Figure 6.8: Dulhazra Safari Park.

Source:

http://www.localyte.com/places-to-visit/Bangladesh--Chittagong--Cox%2527s%2BBazar?&sq=&dist=35&orderby=&next=31

6.2.2 (c) Dulhazra Safari Park

This safari park is an extension of an animal sanctuary located along the Chittagong-Cox's Bazar road about 50 km from town. The sanctuary itself protects a large number of wild elephants which are native to the area. Visitors can enjoy riding on the tame elephants which are native to the park. Other animal attractions include lions, Bengal tigers, crocodiles, bears, *Chitals* and lots of different types of birds and monkeys.

6.2.3 Other tourist attractions near Cox's Bazar

Maheshkhali is a small island (268 square kilometres) off Cox's Bazar's coast. The island offers panoramic views and is covered by a range of low hills about 300 feet high stretching through the centre of the island and along its eastern coastline. The coasts on the west and north form a low-lying tract that is fringed by mangrove forests. Adinath Shiva Temple and a Buddhist pagoda are also located on this island.

Figure 6.9: Maheshkhali Island.

Sonadia Island, a small crescent-shaped island of only nine square kilometres, is located seven km north-west of Cox's Bazar. The western side of the island is sandy and known for the variety of different kinds of shells which can be found on the beach. Sonadia Island supports the last remaining part of mangrove forest in southeast Bangladesh. Another attraction of this island is the sight of game birds migrating here in great numbers during the winter season.

Figure 6.10: Teknaf, the tail of Bangladesh

Source: http://www.flickr.com/photos/desherchobi/3791621391/

Teknaf, a place situated on the bank of the Naf river, is in the southernmost part of mainland

Bangladesh. This also marks the end of Cox's Bazar's beach. Tourists usually come here for a river cruise along the beautiful Naf river which flows between Bangladesh and Burma (Myanmar).

Figure 6.11: Coral island, St. Martin's.

Source: http://www.11sagdhaka2010.com.bd/Pages/Spectator/TourPlace/Beaches.aspx

St. Martin's Island is a small island in the northeast part of the Bay of Bengal, about nine km south of the tip of Cox's Bazar-Teknaf peninsula. It is the only coral island in Bangladesh. St. Martin's Island has become a popular tourist spot and a total of three shipping liners run daily trips to the island. The surrounding coral reef of the island has an extension named Chera Dwip. The island is home to several endangered species of turtles as well as the corals, some of which are found only on this island.

6.3 Climate

As Cox's Bazar is situated in the tropical zone, it is without a doubt subject to a tropical climate. Nevertheless it must be remarked that its geographical position with the sea to the west and a range of hills to the east has greatly neutralised the extremes of climate. There are three main seasons: the monsoon (rainy) season ranges from May to October, during which it is warm and humid experiencing over 90% of the total annual rainfall; the dry (Winter) season is from November to February, with very little rainfall and the lowest temperature and humidity of the year; the pre-monsoon season from March to May has the highest temperature and evaporation rates of the year with periodic thunder storms.

Cox's Bazar district is known as a zone of natural disasters. Cyclones and storm surges cause the river to flood its banks leading to severe erosion of the surrounding land so that the soil-water salinity and floods are identified as the main environmental problems of this area.

Moreover some of these problems occur due to human activities, lack of environmental awareness and poverty.

Cyclones

Cox's Bazar is considered to be the worst hit district in the coastal zone having faced seven severe cyclone attacks from 1960 to 1995. The cyclone comes with four to nine-metre high tidal surges and washes out lives, wealth and crops. In the history of the last century the most severe disasters ensued in 1970 in which almost 275000 people lost their lives. Usually the most severe cyclones occur in May and October. 40% of cyclones take place in the Cox's Bazar, Chittagong and Noakhali districts.

Earthquakes

The earthquake risk in the whole of Cox's Bazar and Chittagong districts is growing day by

Figure 6.12: Protection of marine drive from strong tidal surges.

day. A severe earthquake was felt in Moheshkhali at 4 o'clock and 42 minutes on 22nd July in 1999. The earthquake's range on the Richter scale was 7.0. Recently a research team from Bangladesh University of Engineering Technology (BUET) warned that a severe quake could occur at any time in Moheshkhali.

6.4 Ethnic diversity

In addition to the majority of Muslims, with pockets of Hindus and Buddhists, there are small numbers of ethnic minorities namely the Rakkhain, Chakma, Marma, Murung, Chak, Monipuri tribes. As per the latest census taken in 1991, this population is 22168 in size and are divided between Hindus, Buddhists and Christians. They have their own distinctive cultural life, a separate village government, along with their own tribal exchange system of goods and commodities. Homemade garments and farming are their main sources of income.

6.5 Existing Land uses, facilities and utilization characteristic of Cox's Bazar

6.5.1 Roads and Highways

Figure 6.13: Birds eye view of Cox's Bazar.

Source: http://forums.digitalpoint.com/showthread.php?t=1820934

According to BBS 2003, there is a total of 1291 kilometres of paved roads in Cox's Bazar's districts. The density of roads of this district is 0.52 km/sq. km, featuring especially the coastal embankment called Marine Drive. On the other hand, the system of communication on the islands and the remote hilly region is still being developed. To achieve an overall integrated

development, there is no doubt that the development of a communication infrastructure in these remote areas is essential. The total road network in the district is presently quite inadequate so that the lack of a road network is hampering the district's overall economic activities. Planned investment to connect important growth centers may ensure that the proper price of products is achieved which can act to prevent racketeering.

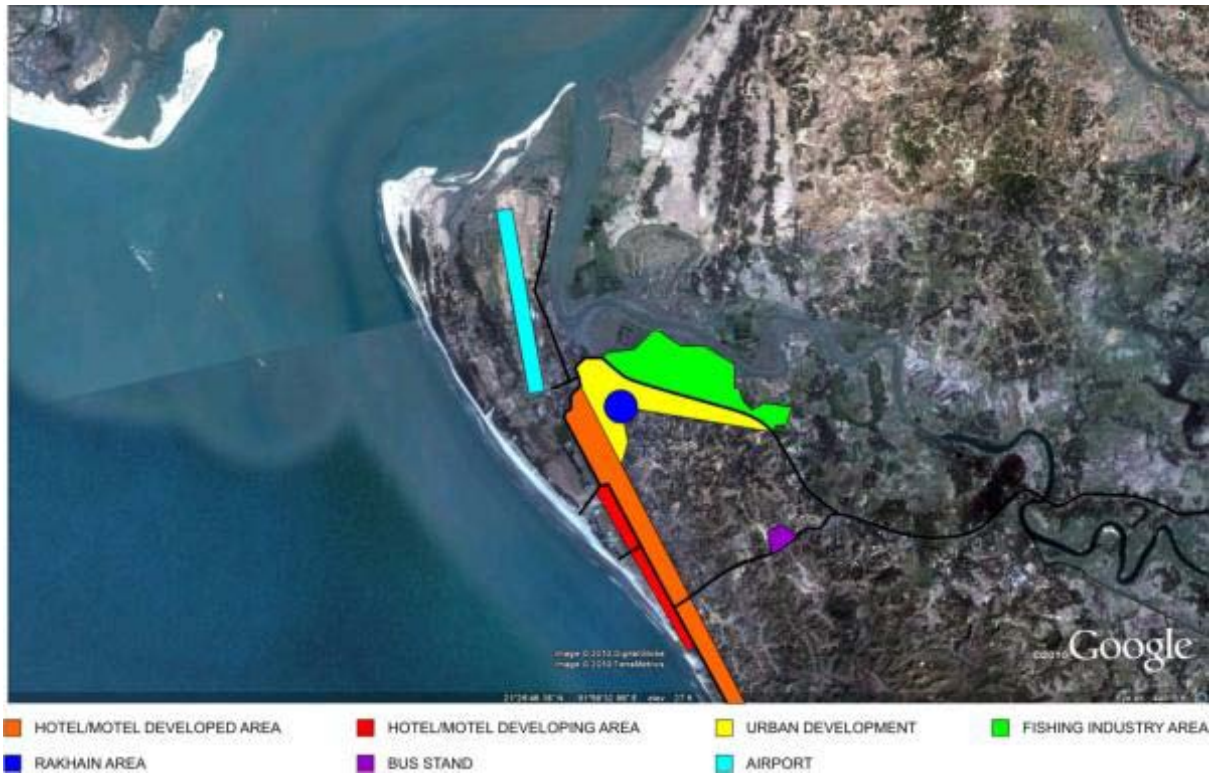


Figure 6.14: Urban development zones in central Cox's Bazar

6.5.2 Telecommunications

The number of telephone connections in this district is only a total of 1923 (BBS, 1998). In the urban area only 25 households have a gas connection. Recently mobile telecommunication has been playing a significant role in this sector.

Figure 6.15: Small fishing boats.

6.5.3 Economic Conditions

The total active manpower, total income, per capita income, per capita agriculture land - all of these components indicate the economic strength of Cox's Bazar. According to the census of 1999/2000, the total number of active labour force in the district was 870,000, of which 87% was male and it was further indicated that the active labour force in 1995/96 was 660,000 (of which 59% was male). This means that the active male labour force has been steadily increasing (BBS, 2001).

6.5.4 Water Supply and Sanitation

Once illiteracy, lack of awareness, negligence and conservativeness were the main obstacles in the way of rural sanitation services, which is still largely the case. Heavy rain together with insufficient natural drainage facilities severely affect the public health of this district. The facilities for a safe water supply are woefully inadequate. From 1972 to 1973, although the Public Health division sanctioned a huge amount of money for the first time to increase the water supply and sanitation, however, in this district, only 29% of all households have hygienic latrines, 54% have kacha (unhygienic) latrines and 17% have no latrine at all. The difference between urban and rural sanitation facilities is thus seen to be significant.

Among the total number of households 91% use tube wells or deep tube wells to access safe water and the rest (9%) depend on other sources of water. It needs to be mentioned that 94% of all tube-wells of this district were not tested for Arsenic contamination and only 12% of the total population had heard about it before (BBS-UNICEF, 2001).

6.5.5 Education

Figure 6.16: Schooling at a Buddhist temple.

The literacy rate of Cox's Bazar is considered to be the lowest within the country's coastal districts. The literacy rate for those over seven years old is about 29% (BBS 2001). On the other hand, the literacy rate for the age of 15 and over is about 31%.

According to the statistics of Department of Primary Education (2003), there are 925 primary schools in Cox's Bazar district and among them only 376 are governmental. A total of 240702 students are studying in these schools. The Primary School enrollment rate is 79%. There are two primary schools for every 10000 students, lower than the national rate.

Figure 6.17: central fish processing centre of Cox's Bazar

6.5.6 Hat Bazaars and Ports

The number of hat bazaars has increased to about 120 in this district because of people's increasing demand for consumer goods, besides the improvement of communication. Teknaf land port is used for the trading of hats between Burma and Bangladesh so that this port contributes tax earnings and the growth of business.

There are eight coastal launch *ghats* or jetties and two bus stops in Cox's Bazar Sadar and Teknaf. If more launch *ghats* are constructed on the islands the people will benefit from increased opportunities for marketing their produce and the demand will be fulfilled.

6.6 Tourism Industry in Bangladesh

Tourists are attracted by various natural and man-made objects in Cox's Bazar. Among these are the beaches, archaeological and historical relics, flora and fauna, natural scenery, tribal lifestyles and the indigenous culture. There is an abundance of these types of attractions in Bangladesh. However, so far, no definite or coordinated steps have been taken to increase the national income in foreign currency by developing these potential attraction making them thereby internationally renowned.

Following the independence of Bangladesh, tourism development plans were prepared with foreign assistance. The latest five-year development plan and other prospective plans for tourism development were prepared with assistance from the World Tourism Organisation (WTO) and the United Nations Development Programme (UNDP). Domestic private sector investments in the development of this industry have been made in an uncoordinated manner, so they have not achieved any remarkable progress. The development of the tourism industry has been constrained for these reasons and it has not been possible to earn the desired amount of foreign currency or to create the employment opportunities that this sector could otherwise provide.

It neither been possible to attract domestic and foreign investment in the tourism industry due to the lack of proper development in this sector, nor to create better opportunities to improve and uphold the international image of Bangladeshi people. The country has enough resources to enable it to become a major tourist destination. Its big rivers, mangrove forests, beaches and eye-catching hills and dales in the south and south-east offer great potential. In addition to this wide range of natural resources, Bangladesh has a rich and diversified cultural heritage, plus areas with tribal lifestyles and natural beauty.

6.6.1 Importance of the tourism sector to the national economy

Bangladesh has achieved political sovereignty, but economic freedom has yet to be gained. When considering foreign exchange earnings from tourism or tourist receipts, the amount might seem rather small. Table 5.1 below shows its financial performance for ten financial

years. Though tourism has not so far assumed a significant role in the national economy, yet it is hoped that it shall grow to contribute significantly to the country's bright economic future.

6.7 Tourism trends in Bangladesh

Unfortunately, since independence in 1971 following a devastating war of liberation, media coverage of Bangladesh has mainly focused on negative incidents like natural calamities, cyclones, floods and epidemics and this adversely affects international tourist flows to the country. This trend appears to have continued in recent years. Statistics showing foreign tourist arrivals for ten years until July 1996 are presented in Appendix B. During the three consecutive years up to 1995, however, there has been encouraging growth in international tourist arrivals.

Table 6.1: The country's financial performance in the last ten financial years
(Source: BPC 2001)

Year	**Total Income**	**Total Expenditure**	**Taka in *lakhs* Pre-tax Profit/Loss**
1990-1991	5079.70	4852.92	226.78
1991-1992	4254.31	3970.49	283.82
1992-1993	4673.83	4289.36	384.47
1993-1994	4385.17	4005.01	380.16
1994-1995	4859.37	4378.21	481.16
1995-1996	2455.51	2218.84	236.67
1996-1997	3768.76	3538.49	230.27
1997-1998	4541.87	4304.26	237.61
1998-1999	3776.49	3592.59	183.90
1999-2000	3829.00	3528.97	300.03
2000-2001	3388.26	3187.14	201.12

It is expected that this growth rate would further increase in the coming years.As shown in Appendix B India is the top tourism-generating country for Bangladesh, closely followed by

the UK and the US. Trends favouring in-bound tourism from traditional tourist market areas like Germany, France and Scandinavians countries appear to be positive.

6.8 Tourism policy in Bangladesh

Once the government succeeded in recognising the importance of the tourism industry, it responded by declaring the National Tourism Policy in February 1992, with the following objectives:

- To create interest in tourism among the people
- To preserve, protect, develop and maintain tourism resources
- To take steps for poverty-alleviation through creating more employment opportunities for its citizens
- To build a positive image of the country abroad
- To open up a recognised sector for private capital investment
- To increase the range of entertainment and recreation facilities
- To strengthen national solidarity and integrity

In line with this policy, the Government provides incentives to attract private sector partners. These incentives include tax-holidays, loans, concession rates for taxes and duties and in specific cases, allotment of land etc.

6.8.1 Strategic Master Plan for Tourism

A strategic Master Plan for Tourism Development was prepared by the UNDP/WTO in 1990 and it is currently being updated by the WTO. Besides, the Government has taken steps to establish Special Tourist Zones (STZ) at Cox's Bazar, Sundarban and Kuakata. In the meantime a primary field survey has been conducted for Kuakata. The Government has taken an initiative to exploit the eco-tourism potential of the country for sustainable tourism development.

6.9 Impact of Tourism in Cox's Bazar

Cox's Bazar has experienced a huge growth in tourism for the last few years. During the peak season millions of tourists visit Cox's Bazar and consequently, its hotels, motels and guest houses are full and some visitors must even spend the night inside their vehicles because there are no rooms available. General observations have shown that tourism has brought with it huge changes in this region. People in the local community are seemingly being benefited by tourism and the economy is quite strong as compared to other less developed areas. On the economic front, the local community and other stakeholders like investors, hoteliers, tour operators and so on are reaping considerable benefits.

The draft report of the Department of Environment for the management of sustainable tourism in Ecologically Critical Areas in Cox's Bazar (January 2008) observed that the current tourism pattern is marginalising locals; poor communities in the area are receiving no significant benefits from tourism, but rather, they are even paying some of the social and environmental costs of this activity. It also states that involving locals in management can be done either by delegating tourism rights to community level or by ensuring that government planning processes are participatory and responsive to local needs.

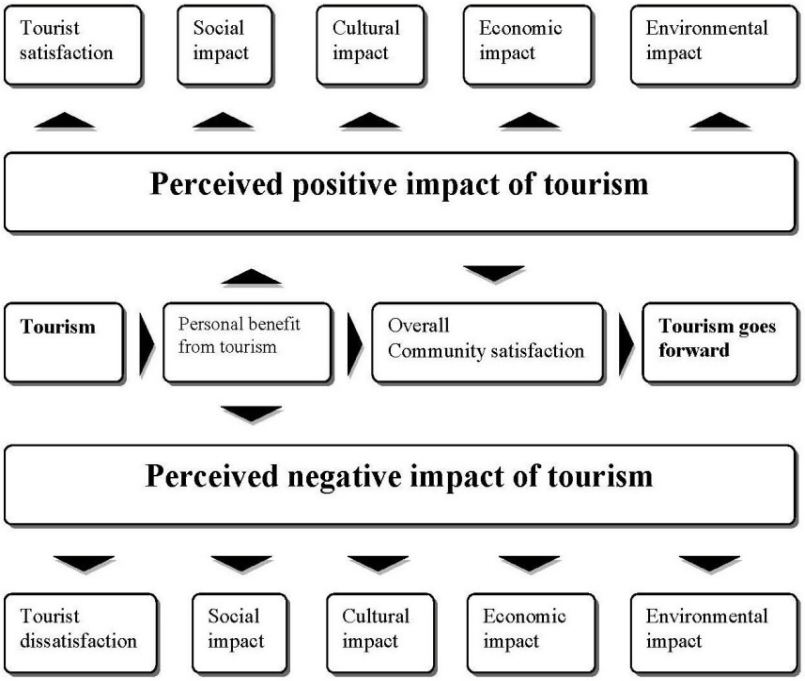


Figure 6.18: Conceptual framework of possible impact of tourism in Cox's Bazar

Though Cox's Bazar is not yet an internationally famous tourist destination, social, economic and environmental impacts have occurred already due to lack of knowledge and unplanned arrangements. On the social side, negative impacts are being felt due to an overall increase not only in crime, but also in social divisions over the distribution of the benefits of tourism and, most grievously, moral erosion and prostitution. When it comes to the impact on culture, it seems that local conservativeness and a traditional life style are on the wane. On the economic front, opportunities of employment may be increasing, but they are simultaneously spawning inflation and higher land valuation. From an environmental perspective, some negative aspects like deforestation and the unplanned growth of structures along the beach have also been noticeable. Although people in developing countries have been seen to tolerate such negative impacts, still it seems that education could encourage a greater understanding of tourism development.

6.10 Rural Architectural patterns and built form in Bangladesh

Architecture has its distinct characteristics as regards planning, use of materials and locations. Like urban architecture, rural architecture is also subject to change, but in Bangladesh, on the whole, rural architecture has clung to tradition. For centuries, it has been using locally available materials. It is only from the late nineteenth century that rural architecture began to change both structurally and in its use of housing materials. Most rural settlements in Bangladesh can be characterised as 'natural', in contrast to 'planned' settlements; they have developed without formal professional planning input and settlements have evolved there largely according to possibilities offered and constraints imposed by the regional topography, climate, natural features, and availability of local resources.

The hierarchical pattern within rural settlements in Bangladesh begins with a *gram* (village) usually established on raised land, and composed of a number of *padas* (settlements or neighbourhoods). Each *pada* consists of a number of *badis* (homesteads), which in turn are comprised of several *ghars* (dwelling units of individual households within an extended family) and ancillary buildings (Islam, 2003).

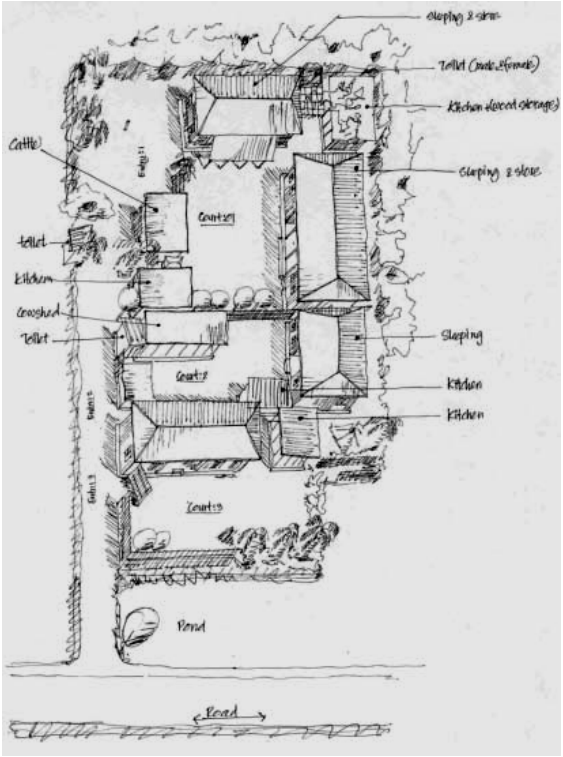


Figure 6.19: A typical homestead pattern and its parts (Islam, 2003).

6.10.1 The "Bengali house" and its basic characteristics

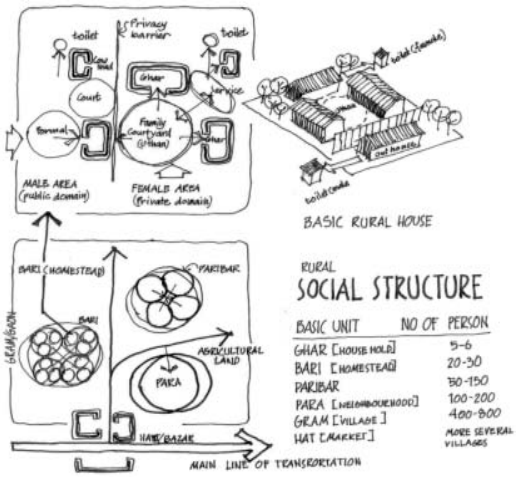


Figure 6.20: Homestead pattern and social structure (Islam, 2003)

According to Mowla (1999) the typical Bengali house has as its main focal point a main living unit associated with other ancillary functions positioned around an inner courtyard. The periphery of a homestead is normally surrounded either by vegetation or screens made out of jute sticks and bamboo. These are used not only for maintaining the property demarcation but also for maintaining the privacy of the houses.

6.10.1 (a) Different types of tradition houses according to climatic zone

On the basis of its climatic conditions Bangladesh can be divided into seven distinct climatic zones (Muktadir *et al*). The **South-eastern zone (A)** surrounding Chittagong usually features traditional houses made of mud or clay, bamboo,

wood, catkin grass etc. In the **North-eastern zone (B)** mud houses are very common. Elevated wooden houses are also found there as most hilly areas are on a slope. Bamboo is the main building material. The **northern part of the Northern region (C)** is an area of extremes. Mud houses and bamboo houses are usually found here. In the **North-western (D) region,** mud houses are common and people also construct two-story mud dwellings. In the **Western zone (E)** bamboo dwellings and mud houses are prevalent. In the **South-western zone (F)** traditional houses are constructed using wooden frames and C.I. sheets. In the **South-central zone (G)** stilted dwellings are characteristic of the traditional house style and mud houses, wooden houses, etc., are also prevalent.

6.10.1 (b) Different types of tradition dwellings according to topography

According to Sultana (1993) the geophysical characteristics of Bangladesh can be classified into three categories as follows: **'House forms found in the plains'** are commonly recognised by their typical roofs and walls. These are subject to change with the variations of location, climate and availability of materials and technologies. Here the house forms are assessed according to two aspects: one is the roofing materials employed and the other their enclosing materials.

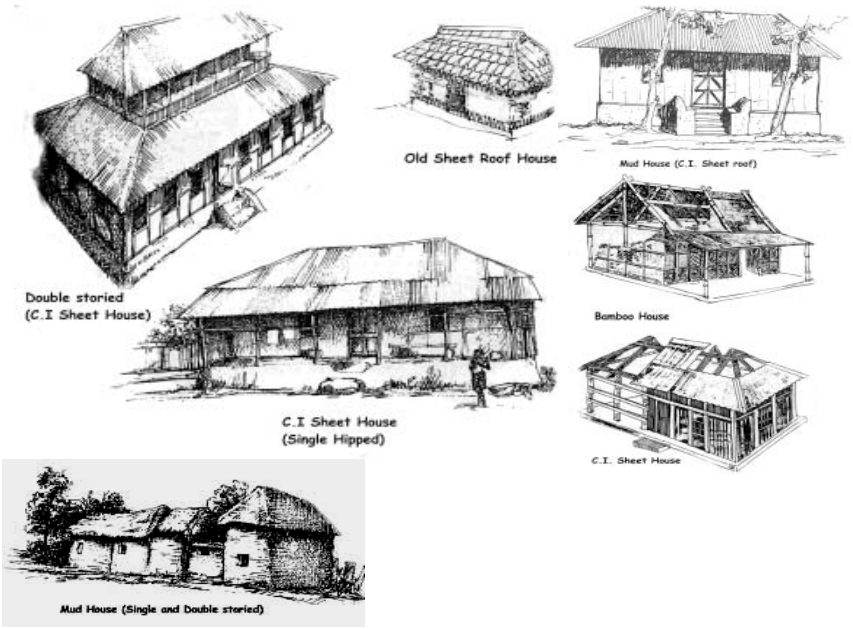


Figure 6.21: traditional house forms (Islam, 2003)

In general, bamboo, thatch and C.I. sheets are the common materials used for roofing throughout the country (Baqee, 1994). The use of C.I. sheeting is increasing rapidly due to its greater availability and durability against the warm-humid weather and heavy rain. Clay tiles are used in areas featuring a drier climate.

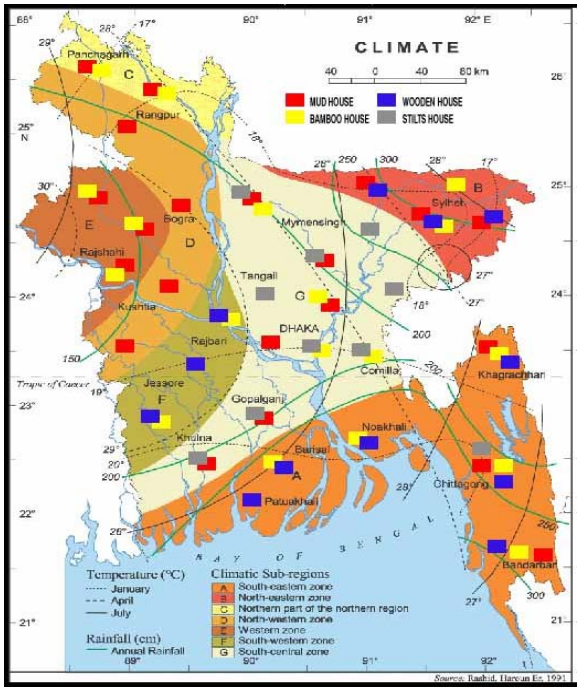


Figure 6.22: Houses in climatic zones

Source: Author and Bangla pedia

According to Sultana, (1993) enclosing materials such as bamboo walls, mud walls, timber houses, timber and brick built houses, C.I. sheet built houses, thatched and straw-walled dwellings are commonly found in Bangladesh.

The existence of terraced land influenced the construction of houses there to be built using mud walls. A dry climate is conducive to forming compact house forms and dense settlements to get the benefit of each other's shade.

6.10.1 (c) Cultural Impacts on the diversities of house forms

Culture is the most powerful influence guiding the evolutionary pattern of households in this area. The traditional Bengali house shows the efficient use of building materials and evolution of a house form having a relationship to the limits and possibilities set by various physical and socio-cultural factors (Islam, 1998).

6.10.1 (d) Religious Impacts on the diversities of house forms

Religion is one of the major factors guiding the construction of rural homes in Bangladesh. Among the total population, 90% are Muslim, 7-8 % Hindu and 2-3% are Christian, Buddhist and others. The Muslim and Hindu religious impacts are seen most prominently in the layout and the arrangement of the built forms. For example, the houses of Muslim families are more introverted in nature because of some religious regulations whereas the Hindu family home

generally looks neater and cleaner than that of a Muslim (Islam, 2003).

6.11 Summary

This chapter provided the rationale for research and Cox's Bazar as the projected site focused on the natural components of tourism and biodiversity. Conservation of archeological treasures, ancient temples and the presence of wildlife further enhance the prospect of tourism in this district.

Figure 6.23: Influence of architecture in Cox's Bazar

Source: http://www.banglapedia.org/httpdocs/HT/A_0291.HTM

It is evident from this chapter that if beach installations received appropriate architectural attention, the whole 120 km marine drive could have changed the tourist face of the district. There is another plan to connect Cox's Bazar from Chittagong through another marine drive with a proposed length of 150 km. If it is connected, it will be one of the longest marine drives of the entire region. Coherent architectural dominance in built activities would surely open new windows to a more sustainable tourism development where people would find uniformity between installations, both natural and man-made. In this process vernacular architecture could play an influential role to ensure that Cox's Bazar may realise its potential while minimising its impact.

PART-III: RESULTS AND CONCLUSION

CHAPTER 07: SURVEY AND DATA ANALYSIS

7.1 Introduction

As stated earlier, survey was carried out as widely as possible in one month's time restraint and this chapter provides an intensive picture of how it was conducted. The chapter pin points the survey area, geographical location, demographic component, occupational identity of respondents and cultural interaction across the survey area. Survey as the key part of the study is detailed in this chapter and contained some inherent difficulties of the survey but spontaneous responses are also noted. This chapter categorised the data based on their sources and relevance to the enquiry of this study.

7.2 Socio-demographic data of the respondents

The local respondents were tabled into eleven socio-demographic factors (table 7.1). It shows that most of the respondents are male (85%) and their age between 30-35 (50%). Their length of residence ranged from 20 to 40 years in the community, i.e., almost 50% have seen the development of tourism in Cox's Bazar with their own eyes. The education level of the respondents is well distributed under three headings: 35 % were below SSC including literate respondents, 30% with primary level education, 35% with SSC to HSC and 35% above that. On the occupation side, 75% are doing tourism-related jobs for their living and the annual income of the majority (40%) is below 1.5 *lakh*. 30% have an annual income of 1.5 to 3 *lakh* and only the fortunate 25% earn over 3 *lakh*. From a socio-demographic viewpoint the respondents came from almost all sections of life in Cox's Bazar. Even a rickshaw puller and a day labourer were interviewed for the sample to be more representative.

Table 7.1: Household sample characteristics: Demographic Profile of Respondents (N=20)

		Number	**%**
Gender			
	male	**17**	**85**
	female	**03**	**15**
Age			
	Under 20	**1**	**5**
	20-25	**2**	**10**

	25-30	**2**	**10**
	30-35	**10**	**50**
	35-40	**2**	**10**
	40-45	**2**	**10**
	Above 45	**1**	**5**
Residency			
	Born here	**2**	**10**
	Below 20 years	**2**	**10**
	20-40 years	**10**	**50**
	Over 40 years	**6**	**30**
Profession			
	Tourism related	**15**	**75**
	Non tourism related	**5**	**25**
House hold size			
	Single	**2**	**10**
	Below 3	**4**	**20**
	3-5	**6**	**30**
	5-10	**7**	**35**
	Over 10	**1**	**5**
House ownership			
	Owner	**8**	**40**
	Rental	**6**	**30**
	Borrowed	**3**	**15**
	With family	**1**	**5**
	other	**2**	**10**
No. of beds			
	1	**4**	**20**
	2	**7**	**35**
	3	**7**	**35**
	Over 3	**2**	**10**

Rentable bed			
	Yes	**13**	**65**
	no	**7**	**35**
Education			
	Below SSC	**7**	**35**
	SSC-HSC	**6**	**30**
	Higher	**7**	**35**
House hold income (annual)			
	Under 1.5 lakh	**8**	**40**
	1.5-3 lakh	**7**	**35**
	Over 3 lakh	**5**	**25**
Primary income person			
	Father	**11**	**55**
	Mother	**1**	**5**
	Son/daughter	**8**	**40**

From the 10 officials (shown in table 7.2), 40% are from government offices including Cox's Bazar district administration, Cox's Bazar Zilla Parishad and forest officials; 10% each are from LG officials and NGOs, BPC and local representatives including the Mayor of Cox's Bazar pourashova. Most of them are responsible officials with direct involvement in the planning, strategic management, monitoring and investment in the tourism industry.

Table 7.2: List of officials taken interview from different offices

SL	Experts on Tourism	Number of respondents (N=10)
1	Govern officials	4
2	BPC officials	2
3	LG officials	2
4	NGOs	2

Table 7.3 shows selected characteristics and activities of tourists, the selected

accommodation type and number of overnight tourists in the study sample. The results show similar distributions of age and gender in both samples. The distribution of the education variable is also varied, with 64% of overnight tourists having completed a graduate degree. The majority of tourists encountered in the study were first-time visitors to Cox's Bazar and it was also found that most of the tourists (80%) were from different parts of Bangladesh.

Table 7.3: Overnight tourists sample characteristics: Demographic profile of respondents (N=15)

		Number	%
Gender			
	Male	**7**	**47**
	female	**8**	**53**
Age category			
	Below 20	**1**	**7**
	20-25	**3**	**20**
	25-30	**5**	**32**
	30-35	**3**	**20**
	35-40	**1**	**7**
	40-50	**1**	**7**
	Above 50	**1**	**7**
Profession			
	Student	**5**	**32**
	Business	**3**	**20**
	Services	**5**	**32**
	others	**2**	**16**
Education			
	Below SSC	**2**	**16**
	SSC-HSC	**3**	**20**
	Higher	**10**	**64**
Earning status			
	No	**2**	**16**

	Yes	**13**	**84**
Paid vacation			
	Not fixed	**2**	**16**
	1 week	**1**	**7**
	2-3 weeks	**10**	**64**
	Above 3weeks	**2**	**16**
Visit time			
	1	**7**	**47**
	2-5	**5**	**32**
	More then 5	**3**	**21**
Accommodation			
	Luxury resort	**1**	**7**
	Rented villa		
	Regular hotel	**6**	**40**
	Budget hotel	**5**	**32**
	Rented beach cabin		
	Eco tourism lodge	**1**	**7**
	Rented room in family home	**1**	**7**
	Stayed with relatives	**1**	**7**
	Boat		
	other		
Vacation type			
	All inclusive	**9**	**60**
	Other	**6**	**40**
Travel mate			
	Alone		
	Family	**6**	**40**
	friends	**9**	**60**
Group size			
	1-4	**6**	**40**
	4-10	**7**	**47**
	10-20	**1**	**7**

	More then 20	**1**	**6**
Night stay			
	1	**2**	**16**
	2-3	**9**	**60**
	4-5	**3**	**24**
Any other plan			
	Another country	**5**	**30**
	Another area of Cox's bazaar	**2**	**16**
	Another district of Bangladesh	**1**	**7**
	return	**7**	**47**
Transport			
	Plane	**1**	**7**
	Bus	**13**	**86**
	Train		
	Boat		
	Others	**1**	**7**
Choice of location			
	Beach side	**7**	**47**
	Hill side	**2**	**16**
	Forest side	**1**	**7**
	Town side	**1**	**7**
	others	**4**	**23**
Visit to Cox's Bazar			
	First time visitor	**10**	**66.67**
Tourists type			
	Domestic	**12**	**80**
	International	**3**	**20**

7.3 Impacts of Tourism

One of the objectives of the research is to evaluate local perceptions of the socio-cultural, economic and environmental impacts of tourism in coastal community in Cox's Bazar. Specifically the interrelationships among local perceptions of impacts, the level of tourism development, and a series of socio-demographic variables are explored. The research is intended to build on findings from case studies discussed earlier, a number of which are described in the following section, by emphasizing specific impacts which have been repeatedly associated with tourism destinations and number of variables that have been found on influence local attitudes towards tourism developments.

Socio-cultural and economcal impacts

The socio-cultural impacts of tourism obtained through the open-ended questionnaire from the local residents are summarised in Figure 7.1 (table 7.7, see appendix D). It shows local beliefs regarding the main impact of tourism in their community. Open-ended responses to this question were categorised into different types of impacts including economic (e.g. more money and jobs), community development (e.g. more buildings and infrastructure), negative social impact (e.g. increased crime), positive social impact (e.g., people are becoming more culturally aware).

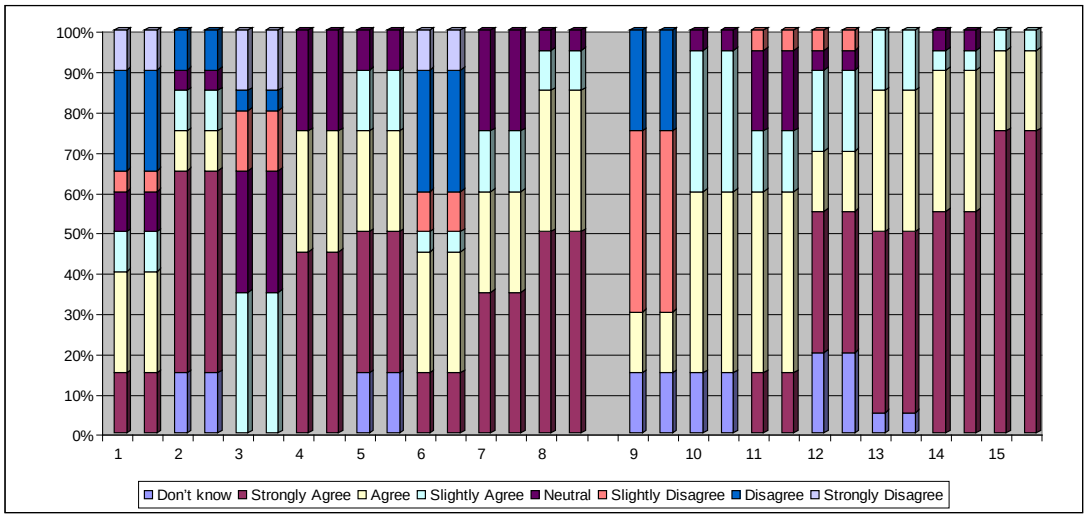


Figure 7.1: Socio-cultural impact

The data from respondents' perceptions to social impact statements are arranged including frequency and percentage for corroboration with the data obtained for both positive and negative social impact data through open-ended questionnaire. The data from perception of Social impacts shown in table 7.4.

Table 7.4: Socio-cultural impact analysis

Because of tourism:	**Experts on tourism (10)**	**Local residents (20)**	**Tourists (15)**	**Industry representative (15)**
Tourism creates social problems	2	3	2	1
Modern ideas, values and behaviour are being introduced in the local community	8	11	9	7
Living standard of the local community has increased.	7	9	5	2
Different infrastructural projects are taking place centring tourism.	9	13	7	5
Crime (drug addiction, child and woman trafficking, hotel - killing has increased.	8	17	6	9
Number of vehicles has increased and causes traffic congestion.	3	4	2	3

The result in table 7.5 shows that the economic benefits were cited most frequently by the respondents. Of the respondents who cited negative social impacts, 50% mentioned increase of crime. Respondents also agreed that tourism is creating more jobs for women.

The response of the experts, residents and industry representatives (Table 7.5) in relation to the positive economic aspects include employment generation, money circulation in the local economy, and investment in the tourism business, and income generating activities. All of them agreed that employment generation is the major thrust of tourism in Cox's Bazar.

The major negative consequences as identified by the both types of respondents are a price hike of essential commodities, high land valuation, land grabbing from poor people's land by the powerful people and an outward flow of money earned from tourism in Cox's Bazar. The other impacts, maybe with less thrust, are the seasonality of jobs, the non-local control of the tourism business in Cox's Bazar and less preference given to the local community in the allocation of tourism jobs.

Table 7.5: Economic impact analysis

Economic Impacts	**Experts on tourism (10)**	**Local residents (20)**	**Tourists (15)**	**Industry representative (15)**
Employment opportunity/ job creation for local community has increased.	10	10	6	12
Tourism attracts more investment in Cox's Bazar	8	16	5	8
Money circulation is going on in local economy. So economic activities increases.	9	10		6
Government is getting revenue.	8	7		10
Income-generating activities are increasing. Income and financial capacity is risings.	6	12		5
Tourism development increases property prices	9	18		8
Non-locals control tourism in Cox's Bazar and locals are not preferred for jobs.	8	15		12
Seasonality of jobs- during off-season the large number of local staffs loses jobs.	7	16		12
Money is being taken away by the multi-national companies from Cox's Bazar.	3	15		10

The economic impact of the tourism industry is usually assessed at the macroeconomic level and can be measured in several different ways. The most general measurement focuses on tourism receipts and the contribution of tourism to a country's GDP. Table 7.6 presents the influx of international tourism in Bangladesh from 1990 to 2000, then 2000 to 2005.

Table 7.6: International Tourism in Bangladesh from 1990 to 2005

Country	International Tourist Arrivals					International Tourism Receipts					
	Thousands of persons			Average annual growth (%)		Value (US $)			Average annual growth (%)		As % of exports of goods and services
	1990	2000	2005	1990-2000	2000-2005	1990	2000	2005	1990 2000	2000-2005	
Bangladesh	115	199	208	5.6	0.9	11	50	70	16.3	7.0	0.7

Source: BPC

According to the 2009-2010 FY about 200 *crore* is being invested in the tourism sector in Cox's Bazar. In next three years another 302 *crore* will be spent for the modernisation and expansion of Cox's Bazar airport to make it an international tourist destination. If these programmes are implemented and some more tourism-oriented projects are taken on, foreign exchange earnings from tourism could stand second or third.

Environmental impacts

The environmental impacts of tourism obtained through the open-ended questionnaire from the local residents are summarised in the following figure 7.2 (Table 7.9 & 7.10 see appendix D).

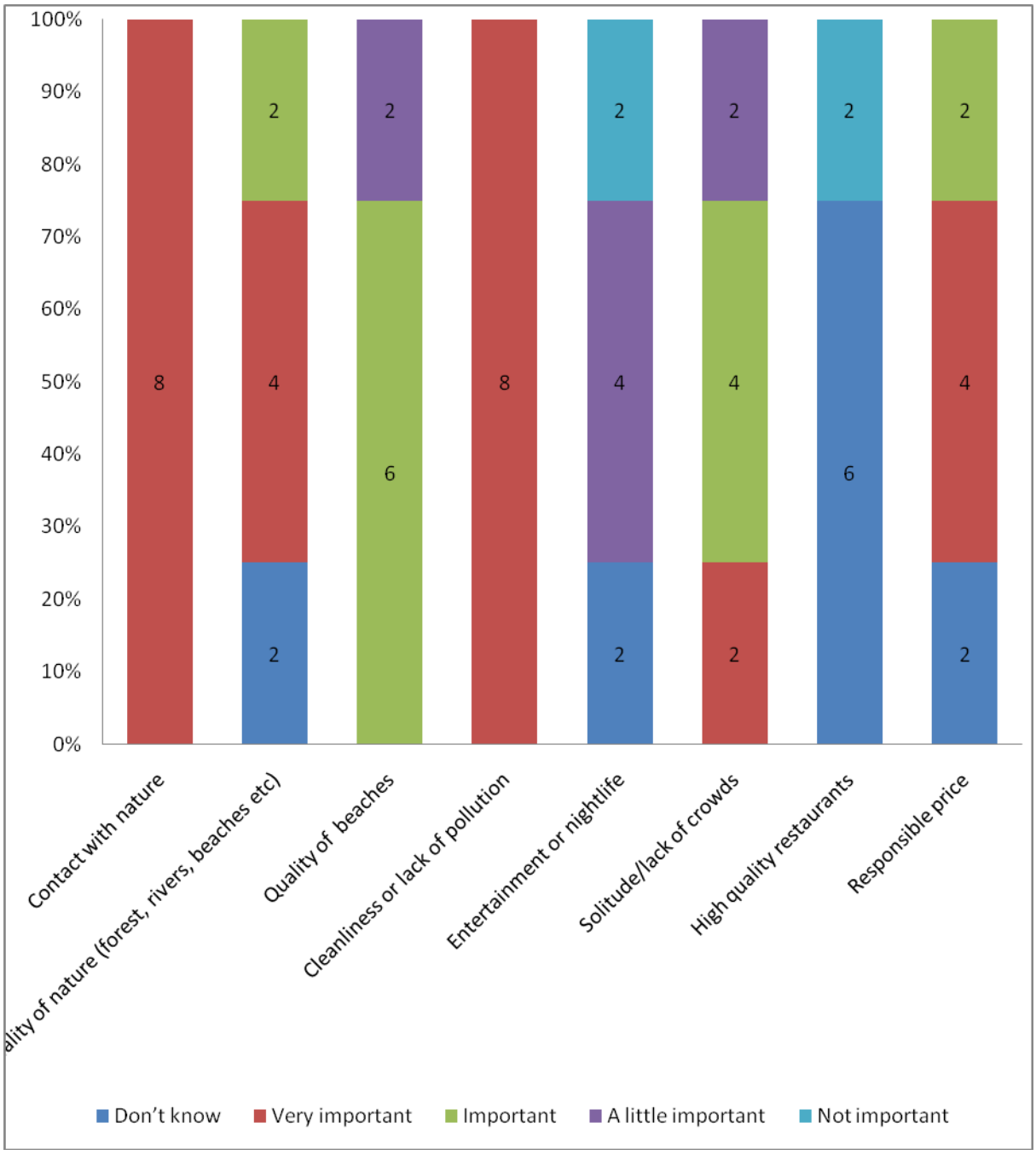
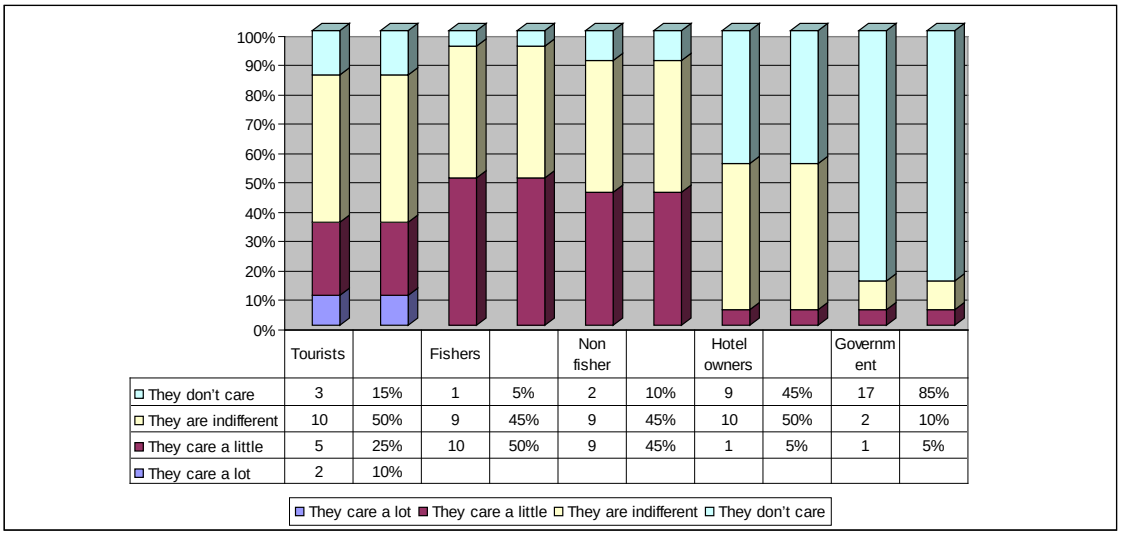


Figure 7.2: Environmental impact

A good majority of the both types of respondents to open-ended questions made the statement that tourism in Cox's Bazar has no positive impact on the local environment. It is relevant to note that the local respondents probably mistook the word 'environment' for their local surroundings. From a sociological viewpoint, the use of the word 'environment" was rather more technical in the sense of applicability and required more careful attention. Still only a

couple of local respondents informed that tourism had a positive impact on the environment. The majority did not inform of any linkage between the tourism impact and a positive environmental effect.

A good number of local respondents (75%) named the unplanned and spurious growth of hotels and motels along the beach as a threat because it caused a loss to the natural environment. Some hotels were built so close to the beach that some of the structures are taken away by the sea every year and thus the beach environment is steadily degrading.
As shown in Figure 7.3 (table 7.11, appendix D) local respondents were asked how much they thought hotel owners, the government, tourists, fishermen and others care about protecting the natural environment. Responses were recorded using four ordinal categories including 'they don't care', 'they are indifferent', 'they care a little' and 'they care a lot'. Results show that 85% of the residents of the study community believe that the government doesn't care and 50% believe that hotel owners are indifferent.



	Tourists		Fishers		Non fisher		Hotel owners		Government	
They don't care	3	15%	1	5%	2	10%	9	45%	17	85%
They are indifferent	10	50%	9	45%	9	45%	10	50%	2	10%
They care a little	5	25%	10	50%	9	45%	1	5%	1	5%
They care a lot	2	10%								

Figure 7.3: Care about conservation

7.4 Tour activities and Importance of factors that attract tourists to visit Cox's Bazar

Figure 7.4 (table 7.12, see appendix D) below shows that most of the tourists like Cox's Bazar as a leisure place with sightseeing facilities and shopping from the local Burmese market and the availability of dry sea fish. A good number also like to attend local cultural

festivals. It shows that the main thrust of tourists in Cox's Bazar prefer to stay a few days in a quiet and crowd-free haven.

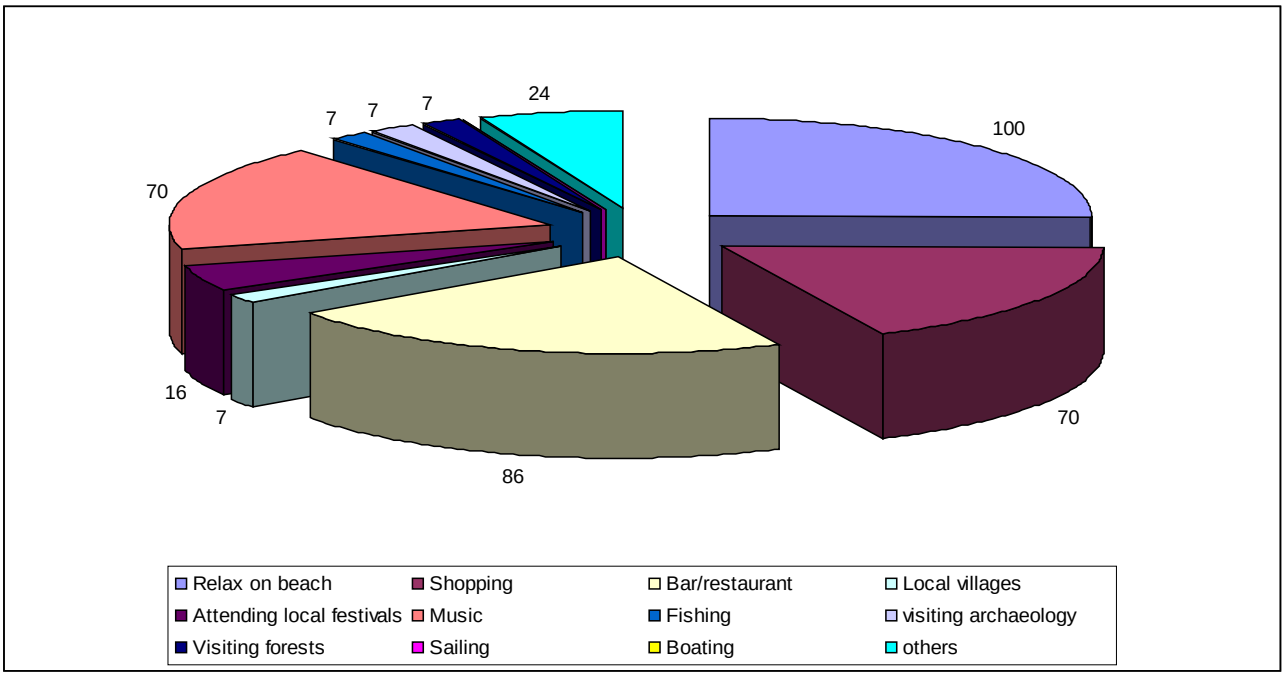


Figure 7.4: Tour activities

Respondents were asked to rate the importance of Cox's Bazar's natural and cultural attractions to their choosing to visit there using five ordinal response categories ranging from 'don't know to 'not important'. Attractions include archaeological sites, beaches, local culture and tradition and coral reefs.

Figure 7.5 (table 7.11, see appendix D) shows that a considerably higher proportion of overnight tourists said they interact socially with locals, where a higher proportion (70%) said they liked the long sandy beach most and 60% are love to do shopping in the Burmese market.

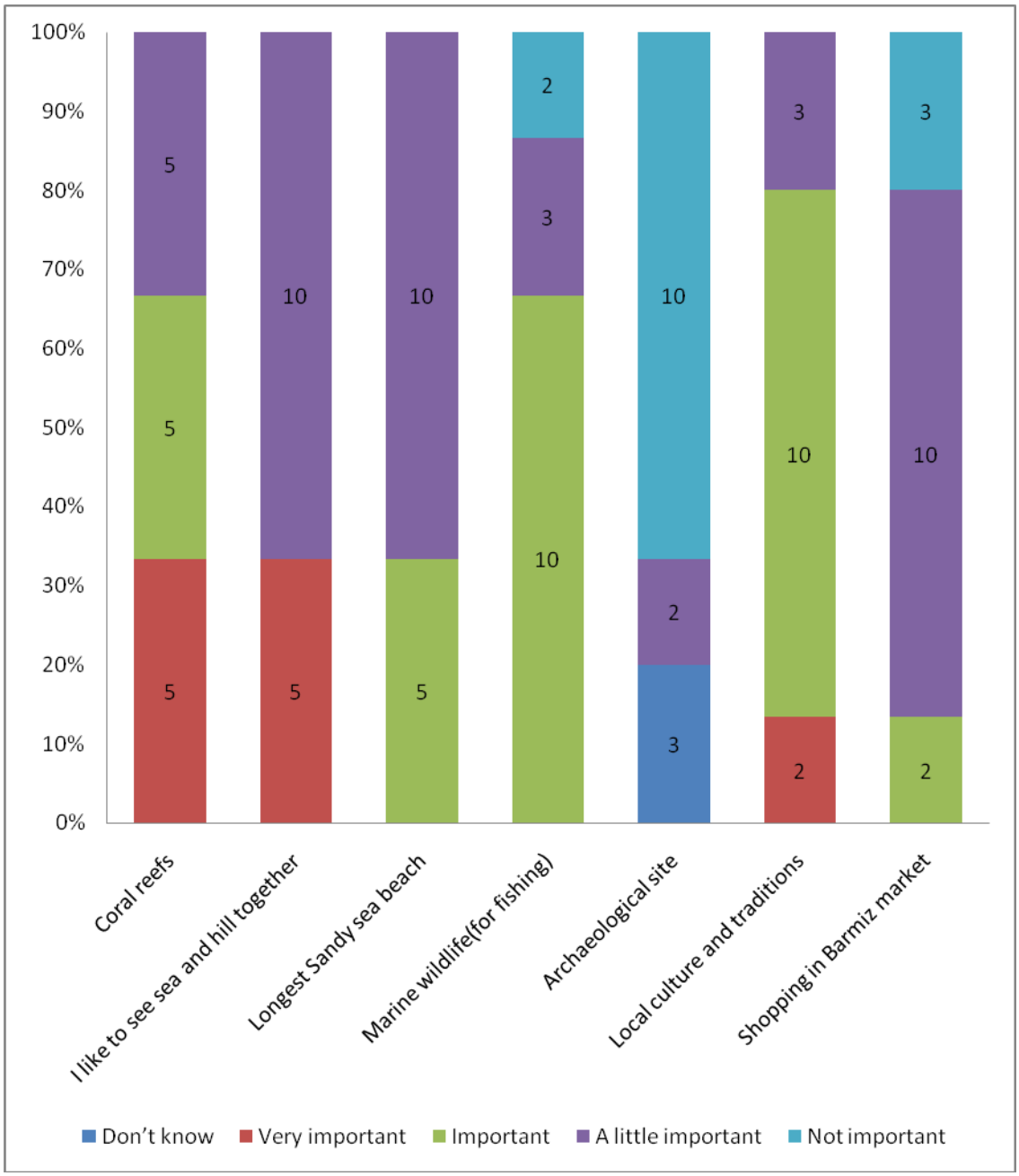


Figure 7.5: Importance of factors that attract tourists to visit Cox's Bazar

The survey shows (figure 7.6) that a significant proportion of tourists want different types of accomodation facilities in leisure spots like small lodges made of local materials which match with nature and as near as possible to the sea beach. Their desired accommodation does not thefore include high rise luxury hotels.

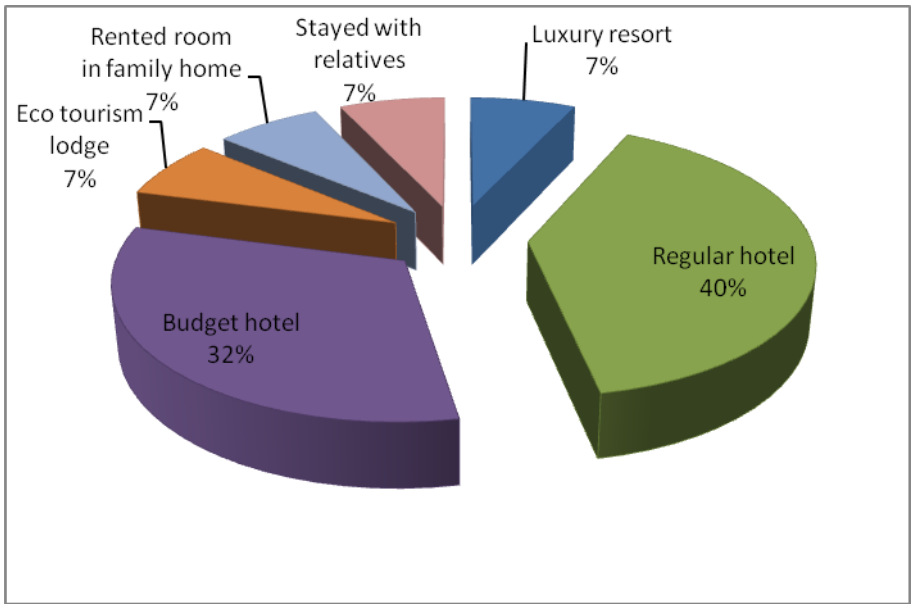


Figure 7.6: Preferred accommodation

7.5 Respondents' view about tourism in Cox's Bazar

While interviewing the key informants and the residents some comments regarding the tourism impact have been noted. It should be mentioned that one question to both respondents were about the tourism management status and their answers mostly came in the form of comments is that Tourism is not well-managed in Cox's Bazar.

For determining the possible impacts of tourism in Cox's Bazar, Kalatali is taken as a control variable which is one of the nearest localities adjacent to the main beach and marine drive passing through this village. Though it is a little far from main beach activities, many tourists now like to stay there to enjoy a crowd-free environment. The participants from this area inform that on completion of the Marine drive and the LGED road this area will receive attention from investors in tourism. Already the land price has become tremendously high and at times people come to see and buy land. The main occupation of the locality is fishing, along with shrimp collection and hatchery, small grocery stores, agriculture and so on. On the socio-demographic front, most people are in the mid-income group and the literacy rate is below the national average but bit higher than in other parts of the locality.

As the closest locality to the main beach and marine drive it was thought paramount to know

their opinion and experience with tourists, and when asked, the general attitude was good. It implies that these people are tourist- friendly and have a good attitude to tourism development.

An important finding of this research is the fact that fishermen expressed no significant difference in opinion and responded neutrally to the statement that tourism had made them better off than before. This suggests that tourism is not having a negative impact on fishermen and may in fact be beneficial to this group without necessity to change their profession which happened in the islands of Malaysia. In depth interviews with a number of fishermen suggested that many of them, the younger generation in particular, chose to move into tour guiding because it is an easier and more lucrative way to make a living. In addition the seasonality of tourism in Cox's Bazar means that many tour guides continue to fish in the slow season to supplement their income.

The majority of fishermen who switched to tourism said they enjoy tour guiding and feel it has improved their lives. Furthermore, most said they did not feel pressured to stop fishing but went into tourism voluntarily. Some of the older generation of fishermen, many of whom were more reluctant to move into tour guiding, did complain about reduced access to traditional fishing grounds that have been designated as protected areas but, overall, said they are still able to maintain their livelihood.

Moreover, in relatively small resort towns like Cox's Bazar, the increased population and crowds, especially in peak seasons, cause noise, pollution, and traffic congestion. In the high season, the infrastructure is stretched beyond its limits, and overcrowding and traffic congestion often causes inconvenience to local residents. This situation obviously hinders the use of public areas such as parks, gardens, and beaches as well as the provision of local services, which may partially result in friction between residents and tourists.
The participating people suggested that the following measures be adopted for tourism development in a vibrant manner:

- Special zone for tourists at a distance to save the local culture and the people from being spoiled.
- Trees are to be planted beside buildings. The entire area should not be covered with

buildings.

- Landless people who sell their land to tourism development should be compensated.
- More local control over tourist business.
- More local employment, training facilities and a tourism institute in Cox's Bazar.
- A few participants want a restriction on land sales to tourism development companies as they find it difficult to survive and local people are losing their land gradually.
- More vocational educational institutions in the region.

7.6 Summary

This chapter included and exposed the field level knowledge of the study through extensive interviews of local people and other users of sea beach, who are mainly tourists. Opinion gathered from hotel staff, guest house managers, local drivers, fishermen turned guides, fishermen themselves and local business made this chapter a local knowledge based stock of tourism thoughts and insights on Cox's Bazar. Data analysis established the rationale of the survey without which this study could not have completed. Respondents spoke from cross sections of local population and the survey reflected strong local view on tourism.

CHAPTER 08: RESEARCH RESULTS AND FINDINGS

8.1 Introduction

This chapter presents research result and findings from both theory and survey perspectives. Literature review and questionnaire survey in this chapter, define a clear bridge between scholars and general users of the tourist zone in Cox's Bazar. It however, accommodated dissenting and competing views of the respondents. This part also provides research's independent note on few points of sustainability studies, focused on current and future use of the research outcome.

8.2 Survey Findings

Local perception of tourism impacts have been linked to the stage of tourism development, with positive attitudes generally associated with less developed destinations. Such studies often emphasize the precarious balance between positive and negative impacts which tends to tip unfavorably after a certain level of tourism development has been reached. The theory of social exchange is most frequently confirmed by studies that link positive attitudes towards tourism development with personal gain, in particular economic benefit.

Respondents were asked to describe the level of tourism in their community using a series of 3 ordinal response categories which includes 'too low', 'correct level', and 'too high'. Table 8.1 (see appendix D) shows the frequency of responses in each category. The result indicates that, on average, locals do not perceive tourism to be too high in their community.

Respondents were also asked how many of the different types of tourists they would like to attract to their community. They were asked to state whether they would like to see less, more, or no change in the number of tourists in relation to the quantity currently arriving in the community, which include resort tourist, cultural tourists, eco tourists. In each survey interview, a brief definition of each tourist type was provided to ensure consistency. The categories were largely based on the different types of tourists observed to be visiting the study communities in different case studies discussed earlier chapter. Many of them overlap, so the intention of this question was to ascertain if there are certain qualities (i.e. activities, accommodations, motivation for travel etc.) that local people would like to see more or less. The objective of the question was to get as broad a view as possible of the types of tourists

local people would like to attract in overnight tourism destinations, the results indicate that locals in overnight tourism destinations most want to attract ecotourists (defined as tourists who care about environment).

In brief the study has found that the local residents perceived the economic aspects of the tourism impact most favourably and also evaluated the social and cultural impacts of tourism positively. These findings provide support for more studies to be conducted in days to come. However, the quality of the environment, the community's attitude, overcrowding and congestion were found to be the least favourable aspects of tourism impact in Cox's Bazar.

In line with the research findings it is possible to say that compared to the international tourist destinations and the offerings they have, tourism in Cox's Bazar is still in its early years. This is traditional mass tourism and should be promoted to ecotourism as suggested by the respondents. It is also to be taken into consideration that though at its beginning, with more positive impacts on economic, cultural and social fronts, this tourism has already caused some negative impacts on social and environmental factors which are to be ameliorated by the concerned authority taking the appropriate steps. Then these probabilities could be mitigated and the local community benefited and ultimately the bonus will go to tourism. It is now accepted worldwide that without involving the local community, tourism cannot be sustainable because the community is the primary receptor of the benefits and drawbacks of tourism. If it is antagonistic, then tourism cannot develop. On this basis, Bangladesh's tourism authority will, hopefully, take the appropriate steps at least to mitigate the negative consequences so far explored by this research for the greater interest of the local community and successful tourism in Cox's Bazar. This research has received many suggestions from the key informants and it appears that a more strict control of the tourism industry is needed by the government to protect the interests of the social community.

In Bangladesh, the majority of government agencies have historically, for the most part, taken a back seat in tourism development, apparently happy to allow the private sector to drive forward the industry in their countries and regions. They have been equally happy to collect taxes from successful operations, providing little or no assistance to struggling initiatives. As a result, the benefits derived by communities from tourism have in the past been created and received more by accident than design or in a few cases have been engineered by the more philanthropically-minded private tourism businesses or NGOs.

More recently, a range of factors have contributed to government agencies taking greater interest, committing funds and time to collaborative projects and playing a crucial role in the planning, development and management of tourism initiatives. The factors that have helped to bring about this change in the governments' approach include: the awareness of the importance of tourism as a global, national and regional socio-economic engine; the potential for tourism to contribute to environmental management and enhancement; the profile of tourism as a tool for international development and regeneration; increased lobbying by industry, NGOs and tourism organisations; the reasoning behind how to develop sustainable tourism and identifying the architectural involvement to explore the whole industry.

The foregoing study has clearly demonstrated that tourism is playing a positive role in socio-cultural, economic and environmental development in Cox's Bazar. It is often necessary to develop and implement policies that take advantage of the potential benefits of tourism in socio- economic development. In some cases this is simply a matter of increasing awareness so that the joint benefits to tourists and local communities can be 'factored-in' at the planning stage. In other cases it may involve reducing leakages (or retaining tourist spending) and affirmative action may be needed to capture the benefits from tourism development. Some of them are highlighted here together with the issues to be addressed obtained from content analysis so that tourism development in Cox's Bazar becomes sustainable and exemplary for other parts of the globe.

A well-designed tourism policy is of immense importance for tourism development against the backdrop of Bangladesh focusing mainly on Cox's Bazar. The format is changing rapidly from mass tourism to sustainable tourism and now to eco-tourism. We have in force and the government has already formulated a modern draft version of the Tourism Policy 2009, replacing the Tourism Policy 1992, accommodating many new ideas and emphasising the conservation of the local community and local natural environment. Cox's Bazar was given special attention in this draft policy.

A Master Plan for Cox's Bazar has been much-heard of since a long time. Any tourism venture which is established following all the required rules and regulations and necessary approval takes months and then one has to start the construction of hotels and motels, besides other tourism enterprises. Even the government offices concerned with tourism matters are

not well coordinated, so the relevant laws under the same authority can aid the 'Tourism Authorisation Committee in Cox's Bazar' for a quick handling of tourism development. ETZ came up as a strong recommendation to be fulfilled for foreign tourists so that they can feel at home and get international tourism facilities in the form of the 3S (Sea, Sun and Sex) or even the 4S (Sea, Sun, Sand and Sex). ETZ may achieve the status of a 'foreign land' even on Bangladeshi soil. In that case, the conservative local community will not suffer from 'culture shock' or be alienated in their own locality.

Cox's Bazar Pouroshova has no modern drainage system or waste dumping ground. Even the Hotel-Motel Zone along the beach has no drainage facilities nor a waste disposal and treatment system. All wastes are thrown away into the sea directly without any treatment. As a result, the beach environment is degrading and thus the community feeling seems to be antagonistic towards tourism judging from the research conducted. Buildings are being constructed adjacent to the beaches which are damaging the natural environment and spoiling the beauty of the sea vista. So restrictions should be put on building hotels in the name of tourism along the beach.

Environmental standards for drinking water, bathing water, wastewater and air emissions are to be incorporated in the Environmental Regulations for the tourism area. Guidelines could also be developed for open space and densities of new developments. This will ensure that local people do not conflict with the tourists in the high tourist season over public use items.
Traffic management schemes should be introduced in Cox's Bazar as poor traffic management had been at the top as one of the negative impacts of tourism. Cox's Bazar is a small township and all sorts of big and small vehicles enter the city and many accidents including tourists' vehicles are being recorded. At the same time, however, big inter-district buses should not be allowed tp enter the immediate city area.

Mostly domestic tourists visit Cox's Bazar in their millions in the high season, but its infrastructure facilities are not enough to support them. To avoid conflict with the tourists, perhaps placing round the year restrictions on tourist numbers visiting Cox's Bazar could be considered.

A Tourism Training Institute at Cox's Bazar to train the local youth for jobs in the tourist industry could be established to help the local community and the investors produce efficient

hospitality people for Cox's Bazar's tourism. Public security and safety have a great impact on tourism development in a region like Bangladesh. The security system is not modern in Cox's Bazar and, as a result, most of the respondents mentioned that crime is on the rise and it is centring on tourism. Killings are happening in the hotels and due to kidnapping and hijackings, foreign tourists are reluctant to stay for longer periods in Cox's Bazar. To the rest of the world Bangladesh is known for floods and poverty. Therefore, Cox's Bazar should be advertised more and more through the local and international media. Very recently Bangladesh's government branded the country as *"Beautiful Bangladesh"*.

Cox's Bazaar needs to be advertised properly on popular tourist-related websites. There should be an efficient coordination of information and services between these websites and the popular hotels, restaurants, shops and travel services of Cox's Bazar. Bangladeshis need to take pragmatic steps to develop and update the relevant websites to increase the international tourist flow.

8.3 The three pillars of sustainability: findings from literature on sustainability studies:

Even though measures were taken may be interpreted as moves towards sustainable forms of tourism in the environmental sense, it is clear that they mostly lie towards the 'shallow' end of sustainability or in other words only the 'greening' of the tourism industry. Not all negative impacts have been caused by tourism but its growth has played some part. One of the most obvious relates to conflict over water as a scarce resource, not just in terms of quantity but also in terms of quality. Water consumption for cleanliness and many green spaces associated with tourism developments and complexes are kept in trim with a high density of sprinklers.

In respect of economic sustainability it must be noted that the study area mostly hotels catering for mass tourism and a number of apartment complexes. The development of tourism has increased employment opportunities but employment benefits have not gone equally to the local population. Real states development is one of the main features of economic development in the area but increases of land prices have placed land ownership largely outside the reach of the local people.

Social-cultural sustainability generally receives little attention. There is little evidence that

the tourism developments in area have much local community input.

Indeed, where that does take place it is more likely to be foreign 'local' input and it's certainly the case that, as far as the coastal area is concerned, there is no strong awareness of or attempt to utilize the regions indigenous and consequently of identity were found. Local democracy and decision-making are largely absent.

8.4 Comparative analysis with the case studies and research survey on Cox'sBazar

From the experience of Langkawi, it is evident that the tourist installations which are architecturally coherent with local uniqueness have proved to be more correct to attract tourists as well as nature preservation. These installations are very much local as well as of international standard and also freed from the side effect of mega structures near hill and sea. The tourism grounds on the island are therefore based on a combined and carefully chosen development plan local in nature, whose architectural patterns come both from the soil and men and whose cultural protection has flourished with its own special characteristics. Cox's Bazar, in contrast, is lacking in architectural correctness while the town has expanded and its tourism facilities have increased and new structures have been raised.

Langkawi and Cox's Bazar: Compare and contrast: From the experience in Langkai, Cox's Bazar has need to adopt nature friendly eco lodge accommodation for the tourists. Cox's Bazar has additional natural facilities that Langkai does not and as part of the main land Cox'sBazar revealed more opportunities to adopt architecturally suitable accommodation and achieve sustainability in a long term.

From Belize's experience, Cox's Bazar can be warned as per the following:

- Sustainable tourism: much depends on architectural coherence and environment-friendly tolerable built structure.
- Eco tourism does not need large installations that place stress on nature, create pollution and place a burden on the local landscape.
- Medium of interaction (Language Education) of the local population can comprise an important element of sustainability.

- Participation of trained, motivated local people plays a vital role in sustainability.
- In Cox's Bazar, as our projected case study, we investigate from which perspective it misses the essential conditions required by the Belize model to achieve sustainable tourism.

The example of these two islands presents an unfettered need for desirable balance between expansion of tourism and preservation of local natural resources and possibly a cap to prevent uncontrolled. Development and overwhelming size of tourist population where it outnumbers local population in the peak season. But an ongoing debate probably will never cease as the accompanying development of a growing need for expansion and careful use of technology by causing less harm to the environment.

The Greek islands of Mykonos and Santorini present a particular importance in this study from over development perspectives. Cox's Bazar revealed a similar fear felt by good number of locals that Greeck Islands experienced in recent floods when internal flood management system was found to be collapsed and overdevelopment was hugely blamed by experts and observers.

8.5 Answers to the research questions & Findings

This part of the research provides answers to hypothesis statement made in chapter one and findings are placed as matrix to formulate architectural sustainability in sustainable tourism development.

While study was born from the concept of accommodating additional tourists in Cox's Bazar during peak season when they outnumbered local residents for nearly two months, it was felt that intensive research can shed light on problems in a deeper scale. This researcher then discovered accommodation insufficiency and lack of coherent built planning to support tourists accommodation in most popular destination of the country. It was also revealed that architectural reasoning was hugely ignored in past few years while mass expansion activities were carried out. This area of study was chosen for study for MA research and carried out extensive field work despite time restraint. Field work would have been impossible to complete without all out cooperation from local associates and participants on the site.

Invaluable guidance from my supervisors hugely encouraged and benefitted me to be courageous to undertake this amount of work.

The findings from this research are valuable in helping to develop strategic management plans for Cox's Bazar tourism so that the local residents are taken into account as tourism development partners. The positive impacts which surfaced from this research should contribute to the manifold benefits to the tourism stakeholders including the local community, while the negative impact of tourism as found in this study should be reorganized for the greater benefit of the local community and tourism in Cox's Bazar as a whole.

A survey was conducted in August 2010 in Cox's Bazar Township. Among a random sample of residents from a variety of different sections of the city, six questionnaires containing tourism impact statements to know the residents' perceptions were administered with a response rate of almost 100%. Also residents were asked through open-ended questions about the impact of tourism on the locality. Government officials, local NGOs, local and non-local tourism business personalities (the number of officials is ten in total) were also asked using an open-ended questionnaire about the possible impacts of tourism on Cox's Bazar.

The results show that although the respondents strongly agree with the idea that tourism provides many economic and socio-cultural benefits, they are ambivalent about its costs. The residents also mentioned some negative impacts on social, cultural, economic and environmental aspects. On the social side, negative impacts are an increase in crime, social divisions over the benefit of tourism and, most negatively, moral erosion and prostitution. On the part of culture, it is thought that local conservativeness and the traditional lifestyle may be on the wane. On the economic front, the residents are happy with the opportunities of employment, while bearing in mind the negative impacts like inflation and higher land valuation. As regards the environmental aspect, the residents did not significantly mention any positive features, but only some negative ones like hill cutting, forest clearance and unplanned growth of structures along the beach (some newly-built buildings even create obstacles to enjoy the sea view from nearby hills and destroy the visual sea front).

This research clearly illustrate that architectural reasoning was hugely ignored or bypassed

during built activities carried out in Cox's Bazar and beachside installations required extra architectural care which seemed to be unattended in the last decades and consequently unplanned over-development was seen as the wheel of tourism development by both government and non-government organisations. Eco-friendly tourist lodges and mid-height nature-friendly structures were not given priority; instead, high rises blocked one's eye sight from the sea view and even the nearby beach road has become invisible in some parts of Cox's Bazar. Luckily the entire beach from Cox's Bazar to Teknak (120 km) is not affected that much but has had the same misfortune as Cox's Bazar main beach suffered. Protective measures therefore are the demand of both nature and tourism so that sand and sea would not be occupied and bricks would not take the place of sand, such as Belize is facing the kind of problem discussed in Chapter Four. Proportionately the findings also suggest that, to date, the societal and environmental benefits are outweighing the costs. What is abundantly clear is that Cox's Bazar's image should be an ecotourism paradise rather than mass tourism destination.

Given the examples from Belize, Langkawi Island and the Greek Islands, it is evident that tourism cannot be permitted to grow wildly. Every destination has a threshold that cannot be exceeded without resulting in terrible societal, economic and environmental consequences. The complexity of identifying or even conceptualising carrying capacity calls for interdisciplinary, quantitative, replicable studies to address this significant gap in our understanding of tourism impacts. Without learning more about how to identify this threshold, there is a little hope of successfully managing tourism destinations.

That tourism is said to be a double-edged sword is nothing new. Mass tourism can have devastating effects on the natural and social environment of coastal nations. Where it has been argued throughout this research that sustainability and sustainable tourism are elements that should be incorporated into all types of tourism arrangements and managements as well, Cox's Bazar has the clear advantage of being in a relatively early stage of tourism development where decisions and actions related to tourism will have profound impacts on the future. If once unplanned built activities are carried out throughout the beach, it would fundamentally undermine its ability to explore as an eco-friendly tourism site and might face an attraction death in future as tourists will not visit just to see and enjoy the brick jungles with whom they are familiar in daily life in their own mega cities or big towns. A profoundly planned architectural vision would definitely take the pride of being in charge of future beach

installations in Cox's Bazar if built activities are guided through eco-navigation instead of instant and over-development demand.

Tourism, which is expected to expand rapidly with the decline of civil unrest, will put further stress on natural systems. As an important source of foreign capital, tourism expansion is seen as being economically desirable. It is therefore necessary to design and construct tourist facilities that are harmonious with the natural environment and demand eco-friendly tourist lodges to be built near the beach.

8.6 Summary

The chapter accommodated research findings based on the questionnaire survey, field visit and literature review and is intended to help guide future decisions regarding tourism development in Cox's Bazar, Bangladesh. It addressed the issues encountered during literature review and field level works to carry out the survey. Hypothesis statements are materialised through research findings and establishment of an academic connection between scholars and users were thus made in the chapter.

CHAPTER 09: CONCLUSION AND RECOMMENDATIONS

9.1 Introduction:

The present thesis has addressed a number of aspects of the impacts of tourism and possible prospects of sustainable development in coastal communities both in Cox's Bazar and in three popular coastal tourist destinations worldwide as case studies. The first chapter began with an introduction and an overview of tourism development in Cox's Bazar. Chapters two and three provided a theoretical review of relevant concepts such as sustainable tourism and architecture, their meaning and impacts, and sustainable development principles in the context of urban design and built form. Chapter four contained a method of a baseline data collection. Chapter five described three case studies of some of the world's popular coastal tourist destinations to assess the impacts, policy and role of the sustainable development of tourism. Chapter six addressed the current image of Cox's Bazar as a tourist destination. Chapter seven analysed the overall data collected with three case studies and a projected case study of Cox's Bazar and Chapter eight contained our findings. Chapter nine incorporated recommendations arising from the entire study, an overall review of previous chapters along with core discussions of the thesis and possible future directions taken by sustainable studies.

The primary objectives of this dissertation were three-fold: first, to advance our understanding of tourism development, its impacts, sustainable development and tourism research from a theoretical standpoint; second, to address the prospect of Cox's Bazar as a sustainable tourist destination and third, based on these findings, to provide a list of recommendations. This includes a design guideline for beach installations for tourism's decision-makers in Cox's Bazar which will hopefully help to ensure that tourism development has maximum positive and minimal negative impacts on the local population and natural environment facilitated by the desired architectural models of built activities.

The manuscript encompasses the findings of field work undertaken on the site of the projected case study. It shows the existence of different factors and competing opinions that need to be considered whilst making suggestions and recommendations for future built activities on the site. The survey contains the views of the local community in terms of income generation, employment increase and cash flow in the local economy. It also focuses on tourists' perspectives in terms of the facilities they want besides other associated infrastructural measures designed to ensure a tourism-friendly environment.

This survey lends the study an added dimension when it comes to the local people's common expectations, irrespective of profession and age level, as almost all of them emphasised employment increase and an increased cash flow to the local economy. A significant portion of them also raised their voices against unplanned growth near the sandy beach and a social imbalance due to the steadily increase in the price of local land as it jumps in geometric speed every few years. Therefore, the recommendation part of the study contains a projection of a well-organised, systematic, socially and environmentally coherent built guidance for Cox's Bazar's beach tourism in the near future. It also expects future academic advancement in certain areas of study which is yet to be realised on a full scale. Thus, researchers might need to wait to witness rapidly changing social values and competing elements and the replacement of priorities in the tourism sector. However, any future academic understanding will be able to benefit from the current dilemma in terms of architectural activism as an inseparable component of sustainability studies.

As stated in chapter one, this part of the study represents the researcher's independent observations, opinions, thoughts and counter-thoughts on the current academic discourse. We have made alternative proposals to guide policy makers in Cox's Bazar to conform with architectural reasoning in the future built expansion. There was a specific focus on the participatory method of development by placing local host communities in the centre of expansion activities. In many cases, it was found that local knowledge can effectively supplement theories and even fill the gaps or dilemmas. Based on the outcome of the literature review, the field level study and the survey results besides findings from selected case studies, certain recommendations were formulated with the anticipation that future research having less time and monetary constraints may be devoted to this area of enquiry. However, it is still hoped that the present recommendations despite the limitations eluded to, could still play a vital role in pointing out missing components from the built expansion in Cox's Bazar. The timing of this research has, it is thought, also been fortuitous, as it has been conducted at such a time when policy makers seem to be attentive to restoring and maintaining architectural reasoning in Cox's Bazar and further expansion in planning is in fact, presently underway.

9.2 List of recommendations

The following list of recommendations reflects the findings gathered through the questionnaire survey, field visit and literature review and is intended to help guide future decisions regarding tourism development in Bangladesh. These recommendations represent the current concerns and beliefs of the local people of Cox's Bazar and the independent views of the researcher. They are meant to be practical and complementary to current initiatives. In this context, they may not be surprisingly different from many of the actions currently taking place or being discussed and developed. Rather, these recommendations would rather seek to confirm that local people have a good and advanced understanding of the wide scope of sustainable tourism development in Cox's Bazar and the potential impacts of tourism. They also reaffirm that their opinions should play a major role in influencing the future of Cox's Bazar as a successful, sustainable tourism destination. With this in mind, the recommendations are summarised below:

9.2.1 With respect to coastal communities as both beneficiaries and benefactors of tourism, the following factors appear notable:

1. Providing support and ground building to the local economy and a positive contribution to local business

As numerous examples have demonstrated, sustainable tourism can in fact be achieved in a healthy and prospering community. The interaction with locals, living in a thatched hut on a beach, taking a personalised tour or browsing local art and crafts, plus sampling local foods can make Cox's Bazar a desired destination for visitors. In order to achieve local backing for tourism, however, it is paramount that coastal tourism is seen to benefit the local communities along the coast as well as local investors, to identify and promote specific enterprises that local people can undertake. The types of enterprises they could engage in include handicraft and foodstuff production, the production of other products using local materials to sell to hotels, besides engagement in supporting services such as tour guides, local transport, and restaurants. Government departments and local councils can facilitate these economic activities and lead local investments to contribute to small trade enterprises and manufacturers.

2. Participation by local communities and the participatory method as planning and development policy

Sustainability may never be achieved if participation and consent of local people in tourism planning and development are not ensured; needless to say, mere consultation is not sufficient. Global competiveness can not ensue if local resentment towards tourism is seen to persist, which may have resulted from not being involved in the development process. This can also have a negative effect on the experience of tourists and fail to maintain the competitiveness of the tourism market. As the tourism industry is largely dependent upon repeat visits, it is essential that guests have a positive and welcoming experience. The equitable distribution of the benefits of tourism from local communities to the government level is also essential for fostering a healthy and favourable social environment that could establish Cox's Bazar as a pleasurable place to re-visit. Therefore it is safe to conclude that local participation in decisions related to tourism development is extremely important to ensure a successful and equitable tourism industry.

3. Minimising impacts and decreasing risks from over-development across the coastline: a green plan in action.

Appropriate amenities and the necessary infrastructure should be available to accommodate the additional tourists and the associated waste as they come side by side with increased tourism. Sufficient steps have to be taken in the upgrading and expansion of local trash disposal facilities and sewage systems, improved roads and transportation facilities, creating more green space for sports and upgraded medical facilities. Some of the funds necessary for such changes could be derived from tourism taxes already in effect. These improvements would invariably strengthen the tourism market, making them worthwhile investments from a long-term perspective. New business and developments should be made to comply with international and national standards to limit their impact on the environment and the government should make every effort to monitor this compliance. In this way, Cox's Bazar could potentially attract a great deal of attention from foreign investors as it can provide many opportunities for further exploration. The government should, however, take necessary steps to promote it and individuals should be encouraged to contribute financially to improving the infrastructure and facilities in the communities they invest in. A *public private* initiative to build an architecturally acceptable infrastructure can be a preferred immediate

solution to minimise impacts despite the required developments to be carried out.

9.2.2 Overall future tourism development and its impacts on Cox's Bazar:

1. Introduce multi-layer user friendly means of communications

Accessibility is paramount to make coastal tourism competitive and ensure that it represents a user friendly gateway to tourists. Without safe and efficient modes of transport to coastal tourist areas from other tourist hubs, coastal tourism will remain quite limited while accessibility should ideally improve all modes of transport, such as roads, ferries, sea travel and air services. Extension of the railway from the port city of Chittagong to Cox's Bazar is specifically recommended to meet tourists' convenient transport demands. The tourist survey showed that expansion of the tiny local airport is much in demand.

2. Priority-based development and comprehensive tourism management plans with minimum risk of impacts

While many areas of the coast have the potential to become excellent tourist destinations, given the presently still limited resources, it is necessary to identify the areas with the best potential and focus efforts and resources on those areas. The Marine drive based eco-lodge project was found to be very popular as an idea. Providing communications facilities and other amenities are agreed to be introduced, it could become an immediate area of priority which can be decisive in realising the site's full potential to the external world.

To implement this recommendation, a comprehensive Tourism Management Plan for this priority area could be developed by an inter-ministerial coordination cell in association with Cox's Bazar's District Council. All relevant national and local stakeholders would then be involved in the formulation of the plan, which would define the shared vision for that particular destination. Based on this shared vision, the plan would provide detailed steps that need to be taken to ensure the sustainable development of that particular destination. The three key components of tourism (attractions, accommodation, and access) would then receive the plan's special attention, as would the issue of cost- and benefit-sharing amongst all stakeholders. A destination marketing plan on this priority area would also feature in the overall Tourism Management Plan. To facilitate this participatory process, it is recommended

that District Tourism Officers be assigned to these priority areas.

The completed Tourism Management Plan for specific destinations would then serve as a blueprint for tourism development in that area. It would consequently guide investors, national and local authorities, and local communities as to what specific benefits it could attract and what must be met in short- and long-term vision planning.

3. Develop a national zoning plan for different types of tourism development

Certain types of tourism, such as all-inclusive resorts designed for package travelers, can alter the atmosphere of an area and make it less attractive to eco-tourists and higher-spending independent travelers. In order for Cox's Bazar to realise its full tourist potential, it is recommended that a clear zoning plan be developed that will target pre-defined geographical areas for different types of tourism development. Tourists who elect to stay in all-inclusive resorts are unlikely to venture into the community to spend money when they have already paid for everything in advance. Likewise, people who elect to stay in a smaller hotel within a community are unlikely to wish to visit, or even be near, large all-inclusive resorts. Experience has shown that normally hotels do not in fact need to be located directly adjacent to or within a community. Transportation services could be set up to bring employees to and from work every day so the benefits of employment could still be realised with less social and economic cost to the community. The adjacent island of SONADIA could, for example, become an exclusive tourism haven for high-spending individual tourists if developed purposefully and nature preservation is not seen to be compromised, especially due to its remote location - having only a limited number of seasonal fishermen staying a few months a year - without any built permanent structure.

4. Recognise the long-term benefits of targeting higher spending, independent tourists rather than mass and corporate tourism

The benefits to be gained from all-inclusive resorts can be substantial in terms of the financial gains associated with foreign investment, employment, and improvements in infrastructure for local communities. These immediate gains can, however, overshadow the more gradual benefits associated with smaller-scale tourism and thus effectively act to discourage governments and locals to promote such developments. Instead by targeting the majority of

tourism developments towards accommodating often higher-spending, ecologically-minded tourists could effectively be more sustainable and bring greater long-term economic benefits to communities and to the nation. This market, which is currently flourishing in Cox's Bazar, results in fewer tourists producing larger, more equitably distributed economic benefits than mass tourists, while having fewer negative impacts on natural and cultural resources. Long term planning might include tourism attractions for corporate tourists from both home and abroad.

5. Tourism education, preservation of ecology and bio-diversity

Conservation, education and alternative livelihood programmes are important to establish sustainable tourism in any area. Research shows that coral reefs and wildlife are important attractions for tourists in the studied community. Marine-protected areas should be developed for environmental conservation as they could be under great threat. An alternative livelihood should be arranged for local people and their sole dependence on tourism has to be reduced gradually under a long term supportive plan. Tourism education and awareness on both the formal and informal levels should be introduced so that a positive tourism psychology can be developed among formally educated youth and informally educated portions of the local population.

6. Architectural focus in marketing policy and publicity.

Architectural branding of destinations can play a land mark role in tourism marketing of Cox's Bazar. The strong bond of man-made architecture with that of nature would add extra value for tourists in the outside world and the site would thereupon be identified by architectural icons alongside the vast water of Bay of Bengal with its silvery sand beaches.

There is no doubt that significant architectural brands can be created through structural design, values and lifestyles. As a result, unique and distinctive elements can be conveyed to the target group. Architecture is a significant means of expression that affects its spectators emotionally so that [sentence deleted] high quality architecture can be seen to augment the cultural as well as experience value of a product. Tourism spaces and buildings create messages through two channels: directly and via impressions. Through the style and quality of the architecture, certain target groups are being addressed lending additional sophistication

to a particular site. Many stories can be related through the medium of and about architecture. For example, it is evident that contemporary architecture creates excitement which fosters media coverage.

9.2.3 Sustainable Development guidelines

The planning and development of Cox's Bazar has not been sufficiently systematic, having culminated in its environmental decline. Voluntary measures by private developers and individuals are therefore necessary to change this pattern, thus preserving the scenic and natural attractions of the coastal zone. Tourism developers should consider this in planning to develop the coastal zone. With better planning and integration in the community, the overall socio-economic benefits from natural resources will undoubtedly increase and last much longer. These recommendations could include all aspects of development which may have an impact on the environment, whether negatively or positively. Topics covered include siting, setbacks and landscaping, besides infrastructural needs such as water supply, sewage, waste water, and solid waste disposal.

9.2.3.1 Develop a Land Use plan or Zoning scheme for the coastal area of Cox's Bazar

A Land Use Plan for a coastal area is essentially crucial and should be prepared through participatory land use planning where the local community and other stakeholders are fully involved in the planning process. This plan would include detailed maps that identify land that has been set aside for tourism development. In addition, it would also provide specific guidance as to what types of structures and infrastructure would be appropriate to that specific area. As this plan would have been developed through extensive local consultation, the potential investor would encounter little, if any, resistance from government or local communities to securing sites for hotel development and conflicts would thereby also be minimised. This plan is flexible enough to allow for different ideas to be taken into account in order to accommodate any concerns or needs of individual developers.

Where a formal Land Use Plan, with detailed maps, is not available, the potential investor and local authorities should assist the villagers or local communities in developing a simple Land Use Plan. This could be done through discussions about the potential sites with the local population. Residents of coastal areas may have local knowledge about the ecological process

governing a particular site and can thus provide valuable information to potential investors. Local authorities should be able to direct potential investors to other relevant studies conducted in the area. Local residents would also inform the investor about the cultural or social significance of the site, such as presence of cemeteries, temples, or other sacred or historical artefacts. Through this process of consultation, the local communities would become informed about the proposed development and could raise any questions or concerns about how it might impact their lives. Obtaining local acceptance of the proposed site is invaluable, as it can greatly minimise the chance of any future user conflicts.

Before making a final decision on a site the following factors need to be considered:

- Views and opinions of local communities
- Geological considerations (slope of hills, soil composition, etc.)
- Sensitive ecosystems (identified by the Town and Country Planning Ordinance), among others the following as ecological fragile lands suitable for conservation: beaches, mangrove swamps, flood plains, onshore and offshore outcrops of coral reefs, estuaries, coastal mudflats, wetlands, deltas, marshlands, swamps, lagoons, streams, rivers, river valleys and banks, and steep slopes
- Degree to which landscape would need to be altered
- Proximity to basic infrastructure services such as electricity, roads, water supply, solid and liquid waste disposal facilities
- Need for additional land for possible future expansion
- Existing or planned development in surrounding area (tourist or other)

Carrying capacity

As the success of any coastal tourism venture is dependent upon maintaining a healthy environment, most problems related to coastal development are the results of placing too much stress on limited coastal resources, a condition known as ‘exceeding the carrying capacity’. Carrying capacity is not a fixed amount and varies with geographic areas as well as with the degree of human use. Carrying capacity can be physically, environmentally, or socially limited.

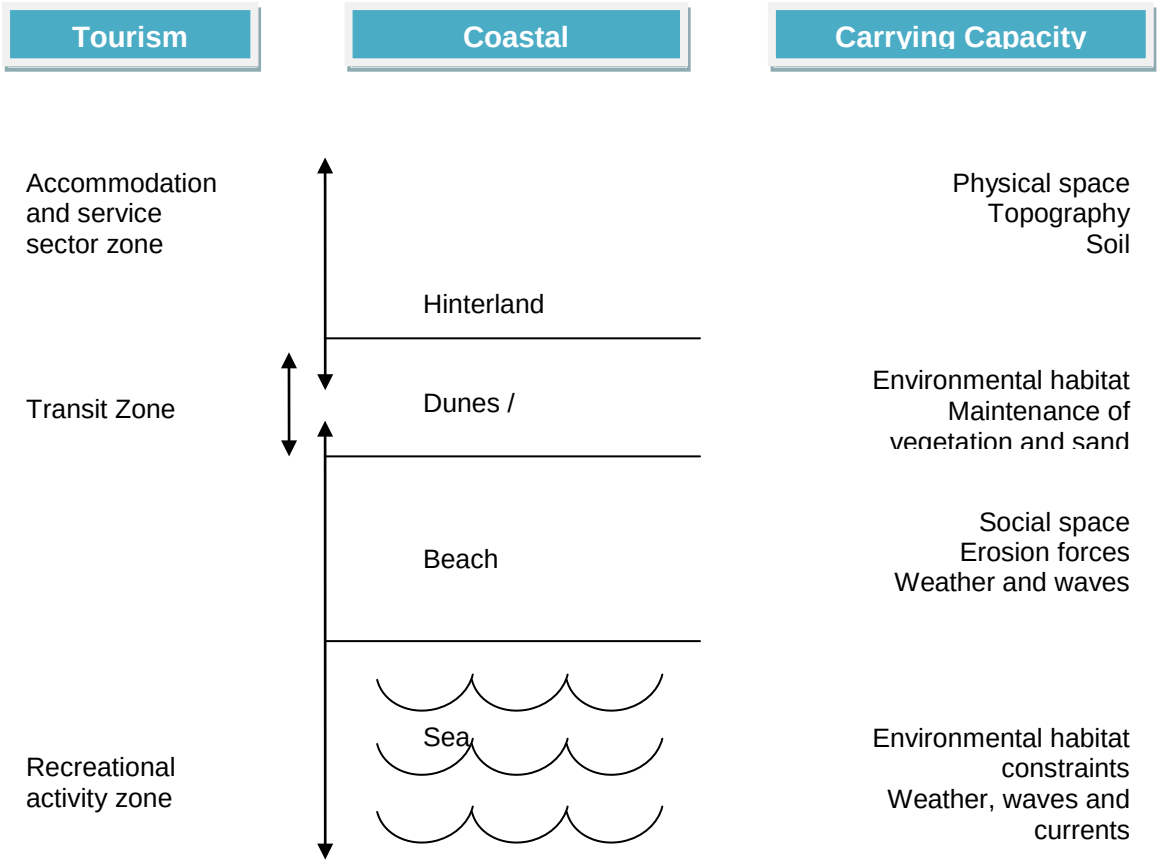


Figure 9.1: Carrying capacity in coastal zone environment in relation to tourism
(Source: Sullivan et.al., 1995)

In areas where there are many coastal resources users, it may not be prudent to plan a hotel development. The impacts from the hotel and associated tourism may exceed the area's carrying capacity, resulting in increased user conflicts and decreased resource sustainability and economic losses for all involved. A careful pre-study must be conducted to determine the suitability of an area for tourism development in regards to carrying capacity. A tourist development not only includes the actual building to house the tourists but also the inevitable restaurants, shops, and service facilities that accompany it. All of these must be considered to determine impacts on carrying capacity.

Coastal tourism developers must consider how their project will affect the coastal eco-systems. As these systems are interconnected, developers must assess the extent to which their actions will affect the coastal region as a whole. Activities such as filling a wetland or mangrove will increase the amount of pollutants reaching nearby shore waters, reduce local

fish stocks by removing habitat and breeding grounds, and reduce nutrients near shore waters. This will cause economic and social losses to other user groups as well as to the tourism sector due to decreased water quality. A healthy coastal region will thus attract tourism, while a polluted one will discourage it. The local community must not be kept isolated from activities carried out near its locality which may affect the local residents' usual route to work and leisure activities.

Development within close proximity of Cultural and Archaeological Sites

Bangladesh has a rich cultural and archaeological heritage and some of its finest sites are located in Cox's Bazar. The Directorate of Archaeological Preservation (DAP) is in charge of "the preservation of important archaeological, historical and cultural sites, as well as the coastal zone's scenic beauty and important recreational areas". Within this framework, the DAP has formalised Archaeology Departmental zoning laws whose main requirement is that development is prohibited within 200 meters of the designated sites.

Further, the DAP has the authority to modify, or if necessary, prohibit, development within the coastal zone if it is believed that this development threatens to destroy or decrease the qualities of the site which make it unique and important. Lastly, development in the vicinity of these sites should be in accordance with all other government authorities like the Bangladesh Parjatan Corporation, the Directorate of Archaeological Preservation and Chittagong Development Authority guidelines and regulations for tourist facilities in the coastal zone.

Design Aesthetics of the Area

Along with regulatory considerations, design should be sensitive to the aesthetics of an area. If the development is within view of an important site or building, the tourist facility should not be taller than that site. The design of the exterior of the building should also be constructed to harmonise with the architectural style of the site. A famous example of this type of planning is the city of Washington D.C., where several historical monuments have been designed in a complementary architectural style. The buildings within the city can also not be higher than the Washington Monument. These design guidelines contribute to making Washington a popular tourist destination as they enhance the significant features of the area.

Figure 9.2 illustrates good and poor planning.

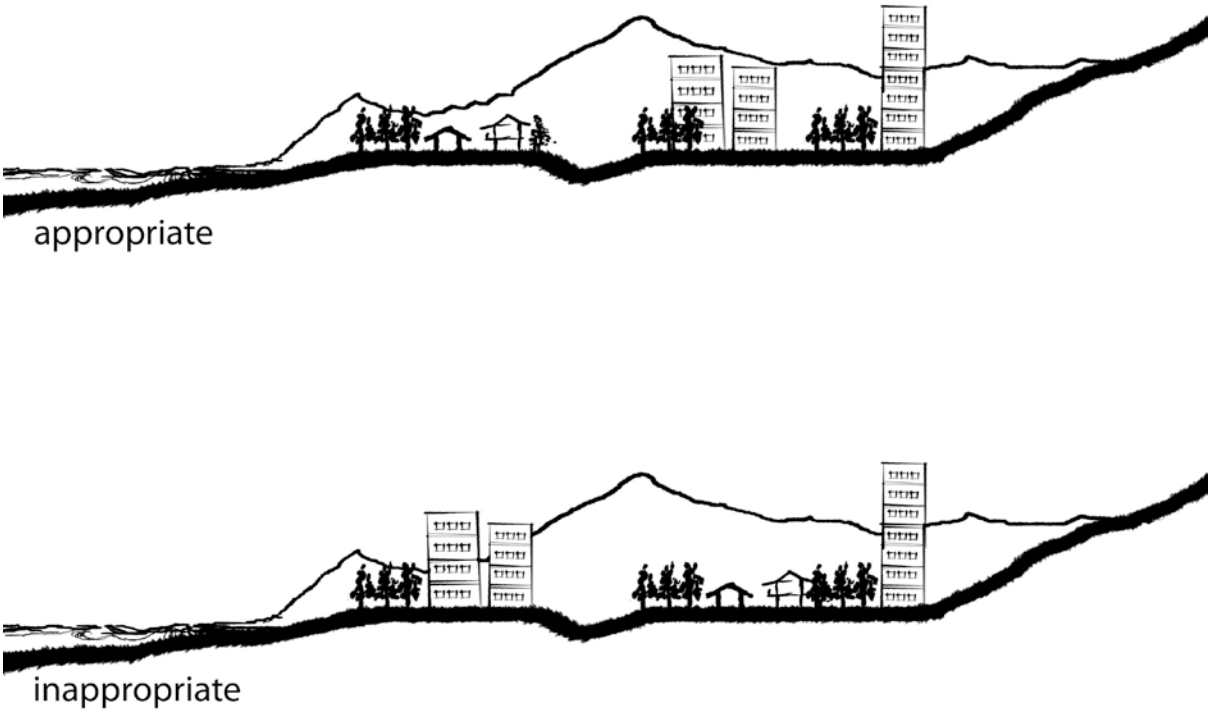


Figure 9.2: Graphical representation of how scale and architectural style may act to enhance scenic beauty.

These planning considerations do not have to be applied solely to buildings, however. They can be applied to archaeological ruins and scenic areas as well. In Cox's Bazar, for example, preserving its scenic beauty obviously did not enjoy a high priority. This is evidenced by the number of hotels adjacent to the beach which obscure the view from the road. As less and less scenic and physical access is available to tourists, the greater the likelihood they will go elsewhere to better planned areas. These considerations are particularly important in areas of cultural, archaeological, and scenic beauty similar to the example of Cox's Bazar cited here, but should also be considered for any tourist development. Planning and design which enhance Cox's Bazar's natural coastal assets act to protect its main tourist attractions.

9.2.3.2 Landscape design and vegetation management in the coastal belt

The coastal regions of Bangladesh contain rare species of vegetation which also provide protection from storms, habitat for birds and mammals, shade from the sun, and a barrier to the erosional forces of the ocean. The best approach concerning vegetation removal and landscaping is to leave as much of the pre-existing vegetation in place as possible. Removal of vegetation will increase the erosion of valuable top soil, siltation and pollution to local waters, contributing thereby to the overall costs of any building project. Further, large trees can take decades to grow and should be considered an asset for the shade and beauty they provide to the landscape. The value of maintaining trees and vegetation is summarised in figure 7.3. The landscaping requirements of any tourist facility will vary according to physical parameters such as soil type, exposure to elements such as wind and saltwater, amount of rainfall, and contour of the development area. Requirements will also vary according to the social dimension of the facility. Some social parameters may include the type of tourist catered towards, their demands for privacy, and visual aesthetics. Practical considerations include the amount of maintenance that needs to be invested in the landscape, as well as considerations of the total cost. An overall plan should be developed with the consultation of someone who knows about vegetation in Bangladesh and who is familiar with the physical constraints in a given area. Unplanned landscaping can lead to future problems such as obscured views or buckled pavements. Contrariwise planned landscapes can enhance the atmosphere of a resort while providing guests shade and privacy.

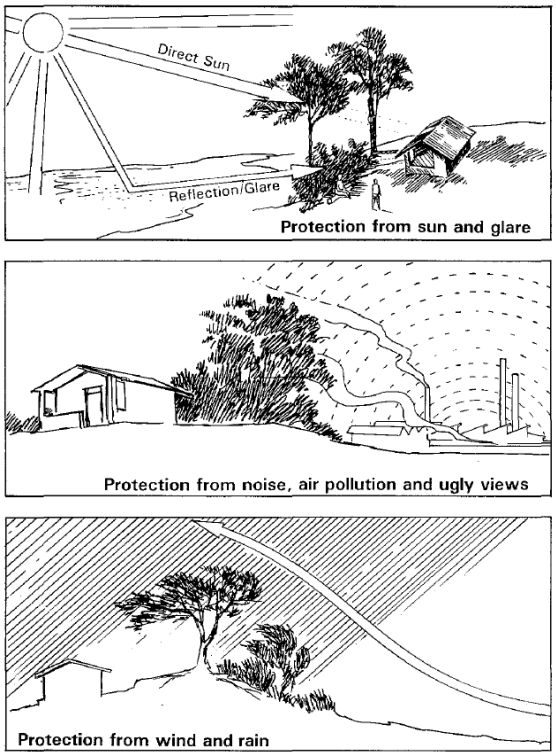


Figure 9.3: Shelter provided by trees and vegetation which enhance the environmental quality. (Source: Sullivan et.al., 1995)

9.2.3.3 Supply of fresh water and availability of open source

The two main sources of water are surface and ground water; both are recharged and sustained through precipitation. Surface water includes rivers, lakes, streams, and springs. Due to their direct contact with human activities, most surface water sources in Bangladesh are polluted. Groundwater, on the other hand, is located below ground and is classified as such only if the water supply fully saturates the adjacent soil. Available water sources must be quantified and calculated according to the average consumption of the proposed development to determine if the supply is adequate. Costs will increase if water needs to be transported to a resort and stored. For example, one Malaysian resort on Pulau Babi Besar, Lankawi Island, was designed to house 200 guests, but in reality only caters to 50 guests as it is limited by its water supply.

In considering water supply needs, Table 7.1 may be helpful in determining the water needs of tourists. Although water supply figures vary drastically, in general, tourists from developed, industrial nations will use more fresh water than will domestic tourists or tourists from other developing nations. Water demand may also vary widely according to the location of the resort, and the time of day. The highest periods of use are in the early morning and evening when water use can be as much as 200 percent greater than the average water use throughout the rest of the day and night. Of course the design of a tourist facility may also determine the quantity of water used by guests.

Table 9.1: Suggested water storage requirements

Type of Building	Measurement	Storage (litres)
Dwelling	Per resident	70
Hostel	Per resident	90
Hotel	Per guest	135
Commercial building	Per person	35
Restaurant	Per meal	07

Source: (Khanna, 1991)

According to the World Tourism Organisation's standards for resort planning and development, tropical beach resorts should plan on a daily consumption of water per person of about 500-1000 litres per day. In contrast, Indian standards estimate hotel water demand at only 180 liters per person per day. In addition, the proper placement of water wells on the development site is perhaps one of the most important design considerations as water is a fundamental necessity at any tourist facility. (Figure 7.4) Another concern related to well placement in coastal areas is the risk of salt water intrusion. This occurs when fresh water is pumped from the well faster than it can be recharged by rainfall or runoff allowing salt water to enter the well (Figure 61) which is, naturally, unsuitable for human consumption or most other uses.

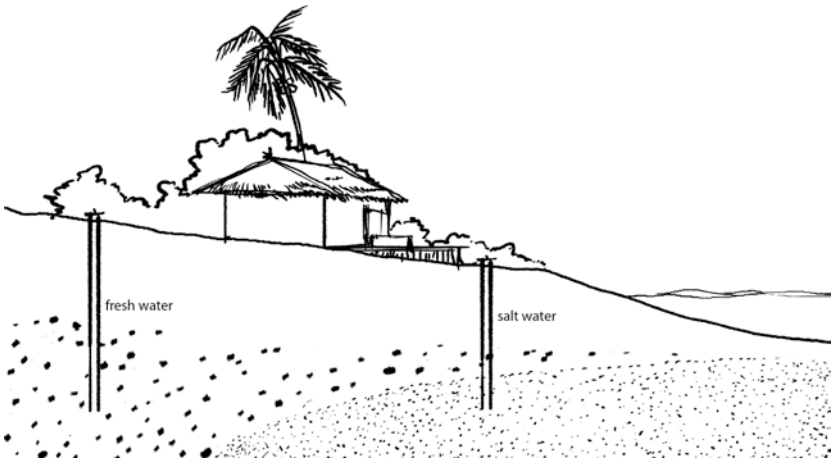


Figure 9.4: Location of wells

Determining the sources of water supply, water storage, and demand must be done at the planning stage. If water sources are too limited for the proposed development, alternative sources must be found or the scale of the plan must be reduced.

9.2.3.4 Wastewater

Along with any water supply scheme, there must be an appropriate plan for disposal of waste water, storm water and sewage. The lack of infrastructure development places the appropriate design responsibilities on the individual developers. Design considerations may include the possible size of the proposed project, topography of the site, height of the water table at the site location, and location of fresh water wells.

9.2.3.5 Sewage disposal

Sewage comprises the waterborne wastes of a human community carried in a sewer system normally containing animal or vegetable matter in suspension or solution, excluding sludge. Sewage can carry human diseases through viruses and bacteria that are pathogenic to humans. Untreated or improperly treated sewage is a health hazard and can contaminate drinking water sources and coastal waters. Contaminated coastal waters are not suitable for swimming and other recreation activities, resulting not only in environmental degradation, but economic losses from tourist declines and increasing health costs of residents. Since there are few central municipal sewage treatments and disposal systems operating in Cox's Bazar, septic tanks and soil absorption systems need to be developed. Large hotels of more than 100 rooms must be required to install waste water treatment facilities. Specifications for these systems should be given in the Code of Practice for the Design and Construction of Septic Tanks.

9.2.3.6 Solid Waste Disposal and recycling

Disposal of solid wastes (plastic, glass, paper, leftover food) is a difficult process in most tropical developing nations. Public infrastructure for solid waste disposal is lacking in all but the largest cities, and even there, it is usually inadequate. Nevertheless, solid waste management must be viewed as essential for environmental and human health (Wilson and Nair, 1992, cited in Sullivan, 1995). In Cox's Bazar, which lacks adequate public waste management systems, the developer must plan for solid waste storage and disposal methods

for the proposed tourism facility. There are presently no recycling facilities in Cox's Bazar and this has been identified as constituting a major setback for the waste management requirement.

9.2.4 Design guidelines for tourist facilities

The appropriate selection of a site and a detailed plan for the entire plot of land should be developed in the first instance. This site plan should show the exact location of facilities to be constructed, including reception areas, guest rooms, staff areas (i.e., kitchen, laundry facilities, workshops, etc.), restaurants, swimming pools, parking areas, access roads, etc. For each structure to be constructed, the size should be indicated as well as the type of building materials to be used. This section discusses the important factors to be considered when developing such a site plan, particularly the need to ensure that setbacks and buffer zones are incorporated into the overall plan.

9.2.4.1 Site Selection on capacity building is instrumental

Coastal land is a limited resource valuable for many different uses. It is important that any development which does not require a coastal location be built inland from the coastline. By doing so, greater access for all users is established as is land for strictly water-dependent uses. Supporting facilities for tourist resorts should be located away from the coast as much as possible as locating these facilities on the shoreline may occupy valuable space, pollute near shore waters due to the increased surface runoff, and may also greatly increase the chances of storm damage. Some environmental variables to be considered have to do with the type and amount of beach available for recreation, and whether the beach is eroding or accreting. Another consideration is whether the ocean is suitable for the activities of the proposed establishment. A further consideration is whether the overall ecosystem can support another hotel, and particularly whether this project overburdens the local water quantity or the site-carrying capacity. Other considerations relate to sewage and water systems. It is important to test the proposed development area to determine whether there is an adequate supply of fresh water. Further, this site must be properly placed in relation to the sewage system to protect against faecal contamination.

Further, a careful review of the surrounding ecosystems must be conducted to determine what

impacts, if any, the proposed project may have on these important coastal ecosystems. By anticipating the potential impacts before they actually occur, the method with the least impacts can be adopted and the expected impacts can be planned for and lessened. Developing along the coast can have a wide range of impacts as illustrated in chapter two. Proper planning and siting will minimise these impacts.

Social aspects to consider when siting a tourist facility include a careful assessment of all local uses of the proposed development area, including potential ways to limit the impacts on them. A development project that inhibits the traditional uses of a region will most likely not be welcomed by the community, resulting in decreased living quality for local people and may also result in decreased vacation quality for visitors. Another social variable concerns the determination of the type of clientele expected to frequent the establishment and planning according to desired needs.

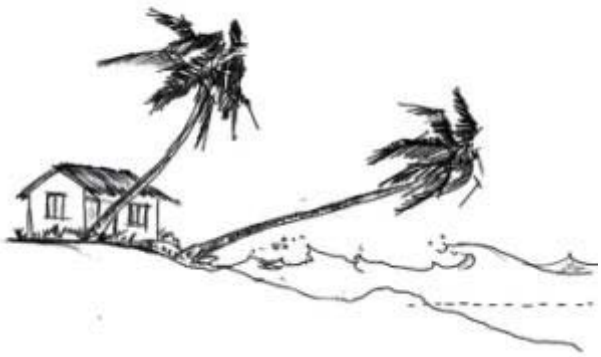
9.2.4.2 Setbacks

Regarding Cox's Bazar's future, while beach structures are being planned, setbacks must always be factored in as they are an instrumental component in planning sustainably. Opportunities for their correct utilisation have already been lost in the last few years when built expansion occurred without due consideration made to their preservation. Although some tourism developers feel setbacks decrease their establishment's desirability to tourists, there are several advantages to having setbacks in place. In a resort or tourist area, the land which is set back between the built development and the beach can be enhanced and provide a multitude of attractions to tourists. Most tourists come from countries where they have spent months indoors avoiding the cold. When they travel to Cox's Bazar, they want to spend as much time as possible outside. The beach will always be an attraction but open, landscaped spaces away from the water can be equally as appealing in providing:

- Shade from the sun and heat
- Places for artists or photographers to work
- Native vegetation which provides tourists an opportunity to study indigenous plants and trees
- Open space to enhance the view of the coastline and ocean.

By allowing seasonal or long term changes and storm surges to occur, economic losses will be minimised as coastal structures adhering to set back land will generally avoid most of the severe damage (Figure 7.5). The development authority should list specific setback requirements for beachside development in Cox's Bazar, as many countries' general allowance of 60 meters from the mean high water mark is considered. Planning at this stage of the development project is most important as proper planning can make the project cost effective and thereby save developers both time and money.

Inappropriate



Appropriate

Figure 9.5: The importance of set back land for any development of coastal areas

9.2.4.3 Common areas for guests (pool, beach front, sports facilities, lounges, restaurants)

It is obvious that most of the tourists do not visit Cox'sBazar to spend much time in their hotel rooms, but rather prefer to seek out open space to walk or a suitable sea or hill view location to gather together. Guests typically spend the majority of their waking hours in common areas of the resort (or on off-site tours or excursions). In fact, these common areas should be seen as the centre, or nucleus, of the entire resort. Since most guests travel to the coast to be near the sea, some of these common areas should be located with a sea view. For example, restaurants or lounges where people spend time eating, drinking or relaxing should also provide nice views of the beach or other natural landscape features. Swimming pools should be located in the centre of the resort, possibly even near the beach, as many guests will want to spend a lot of time swimming and sunbathing poolside, particularly at low tides when swimming in the sea is difficult. Beach *bandas* can be spread out along the beachfront, allowing guests access to the water as well as privacy from other guests. Paths between the beach and pool should be carefully planned so as to protect existing vegetation and dune stability. In some cases, elevated boardwalks may also be needed.

Rooms or bungalows

Many guests will pay extra to have a room with a sea view and developers often place the luxury rooms along the beach to meet this demand. Depending on the size of the plot (particularly the extent to which it spreads out along the beach) and on the number of rooms, it may not be possible for all rooms to have sea views. This may be one of the reasons why it is so important to locate the common areas mentioned above in areas close to or within viewing distance of the sea or beachfront. This means that the rooms would benefit from being clustered around these common areas. Clustering the rooms together makes sense economically as well since all of the infrastructure services such as water pipes or septic systems can be centrally located and serve more than one room. Trees or other vegetation should be maintained between rooms to provide guests with privacy.

Service facilities and utilities (kitchens, work areas, pumps, generators, etc.)

Optimally, guests should never see or hear staff work stations or facilities – in fact, guests should not even know they exist. In addition, since these work areas do not require a sea view, they can be located inland, away from the sea and beachfront. Noisy machinery such as pumps and generators should be located far from rooms or common areas so that guests cannot hear or see them. Separate buildings or structures should be used to house laundry facilities, kitchens, and other work areas and separate paths constructed to provide access only to staff. Again, vegetation can be quite effectively used to shield these areas from view.

Access roads, parking and reception areas

Guests should be able to unload their bags and belongings at the reception area and then park their vehicles a good distance away from the rooms or common areas. This reduces the amount of noise from vehicles and also minimises the amount of dust that could be kicked up and blown into rooms or commons areas. The reception area should be considered the gateway to the hotel or resort – once guests pass through the gateway, they feel they have entered a different environment.

9.3 Future direction for tourism research in Cox's Bazar

While this research was being conducted, it revealed that a local approach to tourism may vary according to the presence of absence of local benefits, occupational interests and socio-cultural standards of the locality. As the impact of climate change on the world's tourist destinations is yet to be fully felt, any future research may address this issue and find new aspects in the area of tourism sustainability studies. Huge technological advancements and a change in the local economy may also promote new thoughts and provide further insights as regards this problem.

The critical point of reference for tourism managers that needs to be identified through future research in Cox's Bazar and many other tourist destinations globally is carrying capacity. Carrying capacity is multi-dimensional in a tourism setting. In other words, it encompasses not only the amount of tourism that can be sustained by the natural and social environment, but also the amount of tourism that can be sustained in a destination before it loses its

attractiveness to its visitors. The complexity of determining these measurements is overwhelming and poses a massive challenge to researchers. In fact, carrying capacity is rarely predicted and generally only ever identified after it has been surpassed. However, the reality is that carrying capacity is a central and crucial element of sustainability.

On a broader geographical scale, future research on tourism should focus on the dynamics of innovation in tourism destinations. The cynicism of much of the tourism literature is reflected in the reality that the decline of tourism destinations is so much more frequent than innovation. Ideally destinations should not exceed the threshold that sends them into decline but, in reality, many have passed it a long time ago. This necessitates research that focuses on how to reverse environmental and societal degradation resulting from excessive tourism development. Though one potential area of focus could be to explore the merits of upgrading mass tourism into one geared towards attracting fewer, higher-spending tourists, obviously this may not be ideal in a rapidly changing economic era where affordability may accelerate faster than anticipation.

Regarding the potential future focus of tourism research in general, it is also important to attempt to ensure that the current fragmentation and possible lack of comparability in the tourism literature actually improves as opposed to worsening. Due to the site specificity of tourism impacts, case studies are an important element of tourism research. However, they must be comparable, quantitatively rigorous and replicable in order for them to achieve the objectives of building on the findings of past research. Without meeting these objectives, such studies cannot contribute to the advancement of theories and tourism academics. Universal evaluation and monitoring schemes should also be established. There is already a plethora of ways to define, evaluate, certify and monitor ecotourism and sustainability criteria in tourism destinations. There are so many, in fact, that there have even been studies to evaluate the different certification schemes. This type of scenario only serves to increase confusion about how to approach tourism management. Again, without identifying common research and evaluation tools, it will not be possible to build on our current knowledge.

As a final recommendation related to tourism research, it is also suggested that natural scientists, economists, social scientists and decision-makers must all work together in order to produce studies that are comprehensive and interdisciplinary, thus capturing the complexity and multi-faceted nature of tourism itself.

9.4 Summary

This research purports to act as a clear wakeup call that the time for tourism decision makers to take measures to manage tourism development more effectively, is now. It is believed that the present results illustrate that Cox's Bazar's local inhabitants may already have a clear and intelligent understanding of what they want and need to get out of tourism development and the impacts that it has had on their livelihood and environment. The government of Bangladesh has already established a legislative and regulatory framework to prevent negative impacts and explore tourism's potential further, but studies have been done showing that it still has miles to go to achieve a sustainability stage in built perspectives.

For my part, I believe there should be an appropriate architectural activism in planning tourism installations in tourist destinations like Cox's Bazar, designed to ensure harmony among the key elements so that they may contribute to achieve overall sustainability. The existence of Cox's Bazar as a viable tourist destination is undoubtedly based on the recognition that the powerful position it may hold in future depends upon the development of a mindful, monitored, precautionary approach to tourism development which may even result in it becoming an international showcase for sustainable tourism. This study hopefully re-enforces the understanding that architectural activism being placed in the centre of Cox's Bazar's tourism development strategy may espouse ever brighter and more prosperous immediate eco-tourism prospects that could even extend beyond Bangladesh's immediate national borders.

APPENDICES

Appendix A: Picture from Cox's Bazar

Exhibit 01: At safari park, Dohazari.

Exhibit 02: Activities at beach area.

Exhibit 03: Flora of Cox's Bazar

Exhibit 04: Fish market and fish processing area.

Exhibit 05: Archaeological site, Ramu.

Appendix B: International Tourist Arrivals in Bangladesh

Bangladesh: monthly tourist arrivals, 1987-1996

Bangladesh: foreign exchange earnings for tourists and other travellers, 1986-1995

(hundred thousand taka)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
January	697.00	145.00	186.00	206.00	181.00	233.00	423.00	458.00	535.00	667.00
February	347.00	157.00	301.00	207.00	593.00	188.00	305.00	744.00	546.00	693.00
March	426.00	186.00	189.00	174.00	423.00	320.00	455.00	700.00	478.00	697.00
April	377.00	303.00	208.00	200.00	195.00	299.00	176.00	425.00	487.00	600.00
May	366.21	167.00	242.00	171.00	164.00	208.00	356.00	523.00	671.00	654.00
June	331.00	171.00	173.00	134.00	215.00	171.00	302.00	359.00	619.00	667.00
July	457.00	135.00	139.00	184.00	180.00	389.00	96.00	375.00	554.00	773.00
August	362.00	120.00	241.00	138.00	225.00	226.00	197.00	491.00	666.00	682.00
September	324.00	164.00	136.00	150.00	292.00	403.00	85.00	445.00	508.00	1 143.00
October	381.00	239.00	122.00	251.00	218.00	303.00	274.00	398.00	712.00	968.00
November	280.00	137.00	255.00	205.00	151.00	322.00	335.00	516.00	694.00	1 006.00
December	116.00	193.00	203.00	180.00	192.00	253.00	287.00	510.00	1 124.00	1 002.00
Total	4 464.21	2 117.00	2 395.00	2 200.00	3 029.00	3 315.00	3 291.00	5 944.00	7 594.00	9 552.00
Percentage change over previous year		-52.57	13.13	-8.14	37.63	9.44	-0.72	80.61	27.76	25.78

Source: Special Branch, Bangladesh Parjatan Corporation, PTS Division (Statistics).

Bangladesh: foreign tourist arrival by nationality, 1986-1995

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Netherlands	18	462	1 457	1 558	1 133	1 443	1 407	2 234	2 780	3 279
New Zealand	354	326	347	341	244	361	308	467	457	520
Norway	416	480	635	541	345	382	441	523	635	549
Oman	196	105	211	146	140	90	158	136	74	79
Pakistan	9 231	9 049	9 253	12 325	9 602	10 250	14 066	12 220	14 194	12 903
Philippines	611	615	6 310	5 089	300	669	454	720	935	875
Poland	177	104	643	646	241	89	72	83	105	274
Portugal	84	57	110	99	84	97	93	61	96	102
Qatar	91	96	130	141	110	48	142	166	107	93
Romania	113	125	108	225	41	28	34	57	69	45
Saudi Arabia	965	1 562	894	1 080	773	985	1 136	1 536	1 424	1 537
Singapore	950	958	1 082	1 176	1 117	1 116	134	1 568	1 712	1 975
Spain	42	50	47	79	48	103	122	164	316	248
Sri Lanka	1 380	1 097	1 071	1 459	932	986	987	1 499	1 152	1 395
Sweden	1 128	1 310	1 102	1 231	737	840	1 146	1 059	1 591	1 575
Switzerland	509	626	445	497	381	482	500	525	655	657
Syria	50	68	58	91	68	70	158	68	73	69
Thailand	1 389	1 036	1 292	1 389	1 021	1 001	1 208	1 231	1 486	1 519
Turkey	280	145	331	312	149	150	134	157	128	98
United Arab Emirates	193	156	259	280	211	180	173	376	338	271
United Kingdom	7 636	6 840	6 088	7 030	5 107	6 484	10 203	15 633	17 332	31 984
United States	6 028	6 285	6 167	7 348	6 540	5 630	7 768	8 220	9 735	10 541
Former USSR	363	472	1 532	1 346	1 100	468	370	567	631	789
Viet Nam	16	17	18	45	61	51	28	50	58	86
Yugoslavia	112	128	433	443	59	41	13	15	21	26
Others	3 305	2 779	3 647	8 735	30 876	5 992	4 407	2 913	3 623	3 326
Total	129 070	106 765	120 782	128 064	115 369	113 242	110 475	126 785	140 122	156 231

Source: Special Branch, Bangladesh Parjatan Corporation, PTS Division (Statistics).

(continued previous table)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Afghanistan	24	44	28	48	19	77	86	41	92	66
Australia	1 240	1 470	1 096	1 163	824	1 105	1 276	1 536	1 911	2 076
Austria	191	86	86	112	155	93	189	358	208	214
Belgium	432	452	442	309	301	338	347	492	513	682
Bahrain	62	36	36	50	36	73	48	100	49	90
Myanmar	261	347	1 090	646	596	216	358	327	281	388
Canada	1 715	1 749	1 606	1 912	2 048	1 636	1 599	1 879	2 111	2 325
China	1 903	2 384	2 970	2 303	2 577	3 037	4 194	3 752	2 936	3 408
Cyprus	2	1	10	4	3	7	30	28	24	15
Czechoslovakia	79	111	92	127	61	31	87	80	126	70
Denmark	782	556	868	872	757	1 031	782	927	1 152	1 152
Finland	229	241	236	287	176	286	312	227	316	246
France	1 327	1 480	1 236	1 446	1 451	1 686	2 313	1 935	2 084	2 258
Germany	2 152	2 696	1 916	1 922	1 756	1 655	2 423	2 234	2 485	2 460
Hong Kong	33	136	109	100	127	152	385	365	185	308
Hungary	92	50	67	40	22	23	33	27	28	39
India	60 574	47 390	50 826	48 314	29 145	25 842	35 607	42 285	47 349	46 015
Indonesia	313	285	814	378	679	337	325	454	491	505
Islamic Republic of Iran	235	303	352	324	224	186	188	248	271	415
Yemen	59	84	65	95	83	64	152	105	61	67
Iraq	181	110	173	141	234	16	57	49	82	46
Ireland	16	264	285	233	104	240	179	185	273	256
Italy	567	1 041	973	992	885	997	1 353	1 685	1 730	1 754
Japan	4 238	4 272	4 016	4 524	4 118	4 950	5 973	5 207	5 749	5 600
Jordan	76	95	104	66	79	104	112	108	161	91
Republic of Korea	1 801	1 924	3 378	1 964	2 588	378	449	3 859	4 635	5 251
Kuwait	140	140	171	161	93	459	279	286	265	324
Lebanon	87	85	96	82	46	52	73	62	60	45
Libya	76	83	90	64	49	50	80	62	19	20
Malaysia	1 217	1 107	1 168	1 316	250	1 337	1 662	2 815	2 425	2 209
Mexico	23	5	48	22	28	36	14	28	35	26
Nepal	13 306	2 790	2 663	4 314	4 372	28 721	1 855	2 808	2 288	2 995

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
January	12 735	11 972	14 521	13 253	11 341	11 179	13 616	16 826	18 523	15 609
February	9 600	8 961	12 195	9 458	8 549	8 926	10 758	9 707	10 910	13 011
March	10 910	10 091	10 720	10 868	7 791	8 280	8 096	10 848	13 734	9 878
April	8 246	9 403	9 904	8 920	12 707	7 671	9 144	10 545	12 853	11 112
May	8 623	9 940	11 106	10 802	11 209	7 701	10 084	11 611	12 317	12 402
June	9 183	11 125	10 934	9 096	11 083	8 890	9 729	10 588	12 447	11 178
July	9 179	9 758	9 645	9 028	10 951	8 815	10 206	11 626	13 262	14 016
August	6 996	10 135	7 451	8 752	7 918	10 013	9 231	10 649	11 813	
September	9 706	6 429	8 816	8 700	5 872	8 627	7 861	8 979	10 152	
October	8 412	9 880	10 142	9 365	8 363	10 971	11 491	10 134	13 004	
November	5 841	11 057	10 091	7 593	8 434	9 641	11 631	13 146	12 000	
December	7 334	12 031	12 539	9 534	9 115	9 761	14 938	15 463	15 166	
Total	106 765	120 782	128 064	115 369	113 242	110 475	126 785	140 122	156 231	
Percentage change over previous year		13.13	6.02	-9.91	-1.84	-2.44	14.76	10.52	11.50	

Source: Special Branch, Bangladesh Parjatan Corporation, PTS Division (Statistics).

Appendix C: Questionnaire

Survey Instrument

Overnight Tourist Survey Questions

Tourist Characteristics

1. Gender M/F

2. What age category are you in?

i) Below 20 ii) 20-25 iii) 25-30 iv) 30-35 v) 35-40 vi) 40-45 vii) Above 50

3. What country do you live in? Nationality

4. Profession

5. Highest level of education you completed?

   Primary/high school/college/graduate school

6. Do you currently earn an income?

   Yes/no

7. How many weeks of paid vacation do you receive each year?

8. Is this the first time you been to Cox's Bazar (including this visit)?

9. What were your accommodations during this trip? Tick all that apply.

   i) Luxury resort
   ii) Rented villa
   iii) Regular hotel
   iv) Budget hotel
   v) Rented beach cabin
   vi) Ecotourism lodge
   vii) Rented room in family home
   viii) Stayed with friends
   ix) Boat
   x) Other

10. Did you come here on an all-inclusive vacation (i.e. you paid for everything in one package)?

    Yes/no

11. Who are you travelling with?

    Family/friend(s)/alone

    How many people, including you?

12. Total length of stay in Cox's Bazar? .....Days

13. Have you or do you plan to visit any other countries during this trip?

    Yes/no/don't know

14. What form(s) of transportation did you se on this trip (i.e. plane, boat etc)?

15. Did you book your vacation through a tourism agency?

16.
    Yes/no
17. Did you book any of your accommodations or activities online?

    Yes/no

18. Do you have any location choice while you choose hotel?
    i) Beach side
    ii) Hill side
    iii) Near main town

19. For each of the features listed in the table below, please tick the box that corresponds to how important this feature was in influencing your decision to visit Cox's Bazar?

	Don't know	Very important	Important	A little important	Not important
Coral reefs					
I live to see sea and hill together					
Longest Sandy sea					

beach					
Marine wildlife(for fishing)					
Archaeological site					
Local culture and traditions					
Shopping in Barmiz market					

Tourism Activities

1. Which of the following activities did you engage in while in Cox's Bazar (this trip only)? Please tick all that apply.

   i) Relaxing on the beach
   ii) Shopping for souvenirs
   iii) Visiting local bars/restaurants
   iv) Sailing/boating
   v) Visiting local villages
   vi) Attending local festivals
   vii) Traditional music performance
   viii) Fishing
   ix) Visiting Buddhit's temple
   x) Others

2. Did you interact socially with local people during this trip? (i.e. sharing meals, socializing at bars on the beach etc.)?

   Often/occasionally/rarely/never/don't know

3. While you were in Cox's Bazar did you purchase any of the following items? Please tick the ones that apply.

   i) Jewellery made from turtle shell
   ii) Jewellery or artefact's made from coral
   iii) Shell
   iv) Locally made arts or handicrafts
   v) Fish from a local market or fisher

Perceptions

1. How would you describe the overall level of tourism in Cox's Bazar?

   Too high/correct level/too low/don't know
   Others:

2. Please rate the importance of the following natural and human attributes in your decision to disembark at this area

	Don't know	Very important	Important	A little important	Not important
Scenic landscape					
Quality of national parks					
Quality of beaches					
Quality of coral reefs					
Friendly people					
Solitude/lack of crowds					
Entertainment/nightlife					
Interesting architecture/built infrastructure					
Local arts and crafts					
Local music, dance, or customs					
'Duty-free' shopping					
High quality services(medicine, dentistry, internet)					
Personal safety					
Cleanliness					
High quality restaurants					
Interesting/high quality food					
General affordability					

3. Please tick the box that most accurately corresponds to how strongly you agree or disagree with the following statements:
Because of my visit to Cox's Bazar…….

	Strongly agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree	Don't know
I have a deeper understanding of Bangladeshi culture								
I have learned								

more about the natural environmen t								
I would like to buy land in Cox's Bazar								
I plan to come back to Cox's Bazar								

4. Has anyone ever advise you not to touch corals?

   Yes/no
   If yes, who was it?
5. In your opinion, the main reason why someone might advise you not to touch corals is because:

6. Based on your experiences, how likely are you to do the following:

	Very likely	Neither likely nor unlikely	Very unlikely
Visit again on beaches			
Visit on vacation			
Recommend to friends that they visit this place?			
Recommend to friends that they vacation here?			

7. On a scale of 1-10, how important do you think it is to preserve the natural environment in tourism destinations (10 is the highest level of importance)?

8. On a scale of 1-10, how important do you think it is to preserve the culture and tradition of local people in tourism destination (10 is the highest level of importance)?

9. Have you ever engaged in any activities geared towards protecting the marine environment in Cox's Bazar? Please tick all that apply.

   i) Attending a meeting to discuss environmental issues

ii) Working for an organization involved in environmental protection
iii) Financial contribution to a local organization involved in environmental protection
iv) Volunteering on a project (reef check, beach clean-up)
v) Conducting academic research
vi) Talking to/educating other people about protecting the environment
vii) Lobbying
viii) Other:

Hotel/Lodge/Resort Survey Questions

General Information

1. Are you owner or the manager?
   Yes/no
2. Where does owner (if appropriate 'you') live for most of the year?

3. How long this hotel/lodge/resort been in operation?

   i) How long it been under the present ownership?

4. Describe your hotel/resort/lodge and the activities associated with it.

   i) Guest capacity
   ii) Number of rooms
   iii) Bar
   iv) Swimming pool
   v) Sauna
   vi) Massage
   vii) Restaurant
   viii) Other services and activities

5. Is your lodge an eco tourism operation?
   Yes/no

   If yes explain how……

   Are you a member of The International Ecotourism Society (TIES)?

6. Are you originally from this area?

   Yes/no

   If not where are you originally from?

7. (If different from person being interviewed)

   What country is the owner from?

   Where does the owner live for most of the year?

8. How many employees do you hire during the peak season and slow season?

   i) How many of these employees are outside locality? From where?

9. Where do your guests come from? (Countries for foreigners and municipalities for residents)

10. On average how long do guests stay at your hotel? ……Nights?

11. What is the price range a couple would expect to pay 1 night at this hotel/lodge during peak season: (specify currency)

    i) During the off-season (specify currency)

12. On average, how much does a guest spend at the hotel for services and purchases (souvenirs, meals etc) other than lodging for his/her total stay?

    i) Less than £100
    ii) £100-£300
    iii) £301-£500
    iv) £501-£1000
    v) Above £1000

13. Have you expanded or diversified your business within the last 10 years? Yes/no

If yes, explain how

i) Additional rooms
ii) Additional services
iii) Additional products
iv) Others?

If yes, explain why?

14. How far is your hotel/lodge from major tourist attractions (Beaches, Temple, Hill, park, others)?

Next to/ with in ½ km/ >1/2km-<3 km /> 3km

15. Since the year 2000, has your occupancy
    i) Stayed the same?
    ii) Increased?
    iii) Decreased?

16. What do you think the main reasons for the stability/increase/decline in your occupancy rate were?

17. In your view, do government efforts to promote tourism have an impact on the image and reputation of this destination?

Yes/no

If yes, describes

Overall would you say the impact is:

Positive/negative/balanced

Farmers/Fishermen Survey Questions

Farmers, Fishermen, Artisans, Casual Labourers: Informal interview form

General information about interviewee/personnel

1. Are you originally from this area?

   Yes/no

   a) If not, where are you originally from? When did you come to live here? (How many years ago?)

   b) If not, do you still have contact with your family or relatives where you are from? Do you support those relatives in any way?

2. Are you planning on staying in this type of work?

3. Please tell us about your work:

4. How long have you been doing this type of work?

5. What are your plans for work in the next year or two? What are your plans for work in the next 5 years?

6. Do you own the land and/or equipment that you currently use? If not where does the owner live?

7. Has your access to land (fishing sites? Other resources?) Changed in the last year or two? In the last 5 years?

Perception and indicator of environmental change

1. Let's talk for a minute about the natural environment. In your work, what environmental resources (habitats, key species, etc) do you use?

2. Have you notice any changes in these environmental resources over last 5 years? What changes have you noticed?

3. In your opinion, what has caused those changes?

4. What other environmental changes have you noticed? What was caused those changes?

5. How much have environmental changes in this area affected your yield? Please be specific.

Economic Information

1. On average, roughly what is your monthly income today?

2. How many people do you support? How many other members of your family work for income?

3. Five years ago, what was your income?

4. How has tourism in this area affected your income?

5. What percentage or proportion of your monthly income comes from tourism?

Environmental Valuations

Please rate the importance of the following natural and human attributes to you personally

	Don't know	Very important	Important	A little important	Not important
Contact with nature					
Quality of nature (forest, rivers, beaches etc)					
Quality of beaches					
Cleanliness or lack of pollution					
Entertainment or nightlife					
Solitude/lack of crowds					
High quality restaurants					
Responsible price					
others					

Tourism Destinations: Survey Questions
(Personnel: Park rangers, Archaeological site managers, Guides)

General information about interviewee

1. Please tell us about your job title:

2. What are your duties and responsibilities (your job description)?

3. How long have you held this position?

4. Do you work for the government/national parks, an NGO, private company, or self employed?

General site description

1. Description :

    i) Park
    ii) Archaeological site
    iii) Marine park
    iv) National
    v) Private
    vi) Other

2. Site name:
3. Number of staff:
4. What are the main attractions of the site? (Why do people come here to see?)
5. In what year was this site first opened for visitors?
6. Who owns the site?
7. Who administrate the park?

Site Visitation: Periodicity of visitation

1. Does the number of visitors to the site vary by season?
   Yes/no
    i) Which months have the highest number of visitors?
    ii) Which months have the lowest number of visitors?

Peak Season Visitation

2. During peak season last year (2009), how many visitors came here on average per day?
3. During 2008 at peak season, how many visitors came here per day?

4. Five years ago (2004), at peak season about how many visitors cake here per day?
5. What is the total number of tourists who visited this site this last year (2009)?

   Nationals/foreigners
6. How do the tourists get this site?
   i) Taxi
   ii) Bus
   iii) Boat
   iv) Rental car
   v) Tour operator
   vi) Others

7. Does somebody keep records on the visitors to the site?
   Yes/no

Changes in visitor facilities and staff

1. If numbers have increased over the last decade: Have new facilities been added?
   Yes/no
   If so, what kind? how many kilometres?
2. Has the number of staff**:**
   Increased
   Decreased
   Remained
   the same?

Tourism impacts: positive and negative

1. Approximately what percentage of the site's total budget would you say comes from foreign tourists as a whole? (If difficult to estimate, say: 10%? 20%, 30% etc**)**

2. What do you regard as a main positive effects and negative effect of tourist visits to this site?

3. What do you think would be the ideal number of visitors per day of the site?

4. Is there any crowd problem at this site? When? Which month?

5. Does the site have a policy or rule for controlling or limiting crowding? What does the policy/rule says?

6. How does the site deal with deal with solid waste and human waste?

Perceptions and Indicators of Environmental Change
Indicator Species and Ecological Communities

1. Are there specific animal, plant, flower or coral species that people come here to see?

2. Which ones are most popular? (What species do people most want to see here)?
   a. On land:
   b. In water:

3. What environmental changes in the site have you noticed in the last 5 years?
   a. Changes in fauna:

      i) In the total number of species?

      ii) Any increases or decrease of numbers within species? Which species?

   b. Changes in flora (plant species)?

      i) In the total number in flora (plant species?

      ii) Any increase or decrease of numbers within species? Which species?

   c. Changes in habitats within the site (wetlands, primary forest, secondary forest)

      i) Deforestation in the site in the last 5 years?
      ii) Change in water quality in the site in last 5 years?
      iii) Change in pollution in last 5 years?
      (If changes, what do you think has caused these changes)

4. Does the site keep records or logs of important wildlife, fish or bird sightings?

5. Are there any scientific studies of flora and fauna in this region?

Household Survey Questions

A. Socio-demographic Information

1. Gender M/F

2. How would you describe your ethnicity?

3. What age category are you in?

   ii) Below 20 ii) 20-25 iii) 25-30 iv) 30-35 v) 35-40 vi) 40-45 vii) Above 50

   Which village?

4. If you were not born here, why and when did you move here?

5. What is/are your current profession (s)? Are you going to change carrier if the tourism developed further?

6. What was the highest level of education you completed?

   Primary/High school/college/graduate/home schooling/don't know

7. How many people, including you, live in your household?

8. Do you own the house that you live in?

   Yes/rented/borrowed/living with family/other

9. How many bedrooms are there in your household?

10. Do you want to rent the room in peak season?

11. Who is the primary provider of income in your household?

B. Tourism Characteristics

1. How would you describe the level of tourism in your community?
   Too high/correct level/too low/don't know

2. Most of them are from

   i) Various parts of Bangladesh
   ii) All over the world

C. Socio-cultural Impacts

1. a) Has the life of you and your household changed because of tourism

   A lot/a little/not at all/don't know

   b) Overall, Would you describe these changes as:

   Very good/good/good and bad/bad/very bad/neither/don't know

2. a) Has tourism changed your community?

   Very much/a little/not at all/don't know

   b) Overall, would you describe these changes as:

   Very good/good/good and bad/bad/very bad/neither/don't know

3. What are the biggest changes that the tourism has brought to your community?
   i)
   ii)
4. What problem you face from tourist?

5. Do you consider tourists help your earning to increase?

6. In your opinion, because of tourism in this community or when the tourism being further developed:

	Don't know	Strongly Agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
There are more jobs locals								
There are more jobs for non-local (outside Cox's								

Bazaar)								
There are more jobs for women								
More non-local (outside Cox's Bazaar) have moved here								
We have more pride in our traditional culture								
Overall quality of life has improved because of the money that tourist spend here								
People want more possessions								
There is an increase in criminal behaviour such as theft, drugs and prostitution								
Tourism has led increase of infrastructure for local people								
The quality of public services improve due to more tourism in my community								
Tourism encourage a verity of cultural activities by the local population (e.g., craft, arts, music								
Tourism has brought changes in local cultural life								

Tourism attracts more investment in Cox's Bazar								
Prices of many goods and services in this area increased because of tourism								
Tourism development increases property prices								

D. Environmental Impacts

1. How often do you visit the following natural environments and what activities do you engage in while you are there?

Natural area	**Days/week**	**Activities**
Coral reef		Boating/Sailing Fishing Business Others
Beach		Relaxing Swimming Others
Deep sea		Fishing Boating Others
Sand flats		Walking Eating Driving Business

Others

Others

2. How would you describe the overall health of the natural environment around your community?

   Perfect/good/average/bad/very bad/don't know

3. If below perfect, what do you think is impacting the health of the natural environment in your community?
   i)
   ii)
   iii)

4. Please state how important you think each of attractions below is in attracting tourists to your community. Do not mark if not relevant to your community.

	Don't know	Very important	Important	A little important	Not important
Coral reefs					
Forest					
Beaches					
Archaeological site					
Local culture and traditions					
Other					

5. Which two of these attractions, if any, are the most important to you and why? (List as most important and second most important)

   i) Because:
   ii) Because

6. In your opinion because of tourism in your community:

	Don't know	Strongly agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
Overall, the								

natural environment is in better condition								
Tourism provide an incentive for the conversation/restoration of natural environment								
Our beaches are cleaner								
The coral reefs are in better condition								
Fisher are more likely to follow fishing regulations								
Construction of hotels and other tourist facilities has destroyed the natural environment in this region								
Tourism development increase the traffic problem								

7. Are you going to worry that the local natural environment will be getting worse because of tourism?
   Yes/No
   If yes, in what way?

8. Have you ever engaged in any activities geared towards protecting the natural environment in Cox's Bazar? Please tick all that apply.
   ix) Attending a meeting to discuss environmental issues
   x) Working for an organization involved in environmental protection
   xi) Financial contribution to a local organization involved in environmental protection
   xii) Volunteering on a project (reef check, beach clean-up)
   xiii) Conducting academic research
   xiv) Talking to/educating other people about protecting the environment

xv) Lobbying
xvi) Other:

9. How would you rank, how much the following individuals care about conservation of the natural environment in your community? Please tick the appropriate boxes.

	They care a lot	They care a little	They are indifferent	They don't care
Tourists				
Fishers				
Non fisher				
Hotel owners				
Government				

Government Officials Survey Question

General Information about interviewee

1. Please tell us about your job title and your duties and responsibilities (your job description)?

2. How long have you held this position?

3. Are you originally from this area? Yes/not

   If not, where are you originally from? How long have you been there?

4. What educational training or degrees have you received?

5. How has your job changed over past 5 years?

General demographics trends and information:

1. Approximately how many people of all ages live in this (city/town/community)?

2. Can you tell me how much of total population of your community has changed over the last five years? Last ten years?

3. What has caused this change in population size?

4. What roughly, is the ratio of men to women in the area?

5. Are there any official's statistics or census information that I could use to better understand population changes over last 5-10 years? Could you please help me locate them?

6. Does your community have a development of land use master plan?

7. Do you know any school officials or principals with whom I could speak? (I would like to ask them how school enrolment has changed over the last 5-10 years.)

8. Do you feel any additional pressure from tourist population in your regular administrative qualities?

Perspectives on Community Development.

1. What are the main advantages or benefits and disadvantages or negative that the tourism has brought to your community?

2. How do you expect the tourism will change the local community?

3. Have you had any regulations and policies regarding the development of the local tourism and protect the local natural environment and local people's life?

4. If there were no tourists arriving here, what would the community do to improve the quality of life (income, education, safety) of its citizen

Employment information

1. Please tell me what is the biggest/most important economic activity in your area?

2. Have there been changes in this list over the last 5-10 years? What was the biggest 5 years ago? 10 years ago?

3. Could you help me find data or statistics regarding the number of licenses issued each year in this community, going back or so for the following:
   i) Taxi license
   ii) Fishing license
   iii) Hotel or lodging license
   iv) Restaurant licenses
   v) Tour guides
   vi) Tour operators

Appendix D: Analysis Tables

Table 7.7: Socio-cultural impacts

		Don't know	**Strongly Agree**	**Agree**	**Slightly Agree**	**Neutral**	**Slightly Disagree**	**Disagree**	**Strongly Disagree**
01	There are more jobs for locals		3 15%	8 40%	2 10%	2 10%	1 5%	3 15%	2 10%
02	There are more jobs for non-local (outside Cox's Bazaar)	3 15%	10 50%	2 10%	2 10%	1 5%		2 10%	
03	There are more jobs for women				7 35%	6 30%	3 15%	1 5%	3 15%
04	More non-local (outside Cox's Bazaar) have moved here		9 45%	6 30%		5 25%			
05	We have more pride in our traditional culture	3 15%	7 35%	5 25%	3 15%	2 10%			
06	Overall quality of life has improved because of the money that tourist spend here		3 15%	6 30%	1 5%		2 10%	6 30%	2 10%
07	People want more possessions		7 35%	5 25%	3 15%	5 25%			
08	There is an increase in criminal behaviour such as theft, drugs and prostitution		10 50%	7 35%	2 10%	1 5%			
09	Tourism has led increase of infrastructure for local people	3 15%		3 15%			9 45%	5 25%	
10	The quality of public services improve due to more tourism in my community	3 15%		9 45%	7 35%	1 5%			

11	Tourism encourage a verity of cultural activities by the local population (e.g., craft, arts, music)		3 15%	9 45%	3 15%	4 20%	1 5%		
12	Tourism has brought changes in local cultural life	4 20%	7 35%	3 15%	4 20%	1 5%	1 5%		
13	Tourism attracts more investment in Cox's Bazar	1 5%	9 45%	7 35%	3 15%				
14	Prices of many goods and services in this area increased because of tourism		11 55%	7 35%	1 5%	1 5%			
15	Tourism development increases property prices		15 75%	4 20%	1 5%				

Table 7.8: Importance of factors that attracts tourist's to visit on Cox's Bazar

	Don't know	**Very important**	**Important**	**A little important**	**Not important**
Coral reefs		5 30%	5 30%	5 30%	
I like to see sea and hill together		5 30%		10 70%	
Longest Sandy sea beach			5 30%	10 70%	
Marine wildlife(for fishing)			10 60%	3 24%	2 16%
Archaeological site	3 24%			2 16%	10 60%
Local culture and traditions		2 16%	10 60%	3 24%	
Shopping in Barmiz market			2 16%	10 60%	3 24%

Table 7.9: Environmental impact analysis

	Don't know	Very important	Important	A little important	Not important
Contact with nature		8 1000%			
Quality of nature (forest, rivers, beaches etc)	2 25%	4 50%	2 25%		
Quality of beaches			6 75%	2 25%	
Cleanliness or lack of pollution		8 1000%			
Entertainment or nightlife	2 25%			4 50%	2 25%
Solitude/lack of crowds		2 25%	4 50%	2 25%	
High quality restaurants	6 75%				2 25%
Responsible price	2 25%	4 50%	2 25%		

Table 7:10 Environmental impacts

	Don't know	Strongly agree	Agree	Slightly Agree	Neutral	Slightly Disagree	Disagree	Strongly Disagree
Overall, the natural environment is in better condition	3 15%		2 10%				5 25%	10 50%
Tourism provide an incentive for the conversation/restoration of natural environment	3 15%		1 5%				12 60%	4 20%
Our beaches are cleaner	1 5%					2 10%	4 20%	13 65%
The coral reefs are in better condition	4 20%				1 5%		5 25%	10 50%

Fisher are more likely to follow fishing regulations	1 5%	2 10%	10 50%	2 10%		3 15%	2 10%	
Construction of hotels and other tourist facilities has destroyed the natural environment in this region		15 75%	4 20%	1 5%				
Tourism development increase the traffic problem		12 60%	4 20%	3 15%	1 5%			

Table 7.11: Care about conservation

	They care a lot	**They care a little**	**They are indifferent**	**They don't care**
Tourists	2 10%	5 25%	10 50%	3 15%
Fishers		10 50%	9 45%	1 5%
Non fisher		9 45%	9 45%	2 10%
Hotel owners		1 5%	10 50%	9 45%
Government		1 5%	2 10%	17 85%

Table 7.12: Tour activities

	Number	**%**
Relax on beach	15	100
Shopping	10	70
Bar/restaurant	13	86
Local villages	1	7

Attending local festivals	2	16
Music	10	70
Fishing	1	7
visiting archaeology	1	7
Visiting forests	1	7
Sailing		
Boating		
others	3	24

Table 8.1: Local perception of overall level of tourism

	Too low	Correct level	Too high
Respondents (N=30)	10	18	2

Appendix E: Common planning standard for beach resort

Type of Accommodation	Space Required
a. Hotels	
Economy	10 meters²/bed
Average	19m²/bed
Luxury	30m²/bed
b. Seaside holiday villages	15m²/bed
c. Apartments in beach resorts Studios	36m²
1-bedroom unit	53m²
2-bedroom unit	80m²
3-bedroom unit	110m²

Infrastructure	Requirement
a. Water (daily consumption per person)	
Mediterranean resorts	200-300 liters/day
Tropical beach resorts	500-1,000 l/day
b. Sewage disposal (no main system)	0.3 hectare/1,000 persons
c. Access road and parking	
Parking lots	1/2-4 bedrooms
Overall density	5-25 percent of site

Tourist facilities	
a. Swimming pool (resort hotel)	3 meters² of water/user
b. Open space (seaside resort)	20-40 m²/bed
c. Shops	0.67 m²/bed

Beach capacity (for resort excluding facilities)

	meters²/person	persons/meter of coast for 20-50 meter of beach
a. Low standard	10	2.0-5.0
b. Medium standard	15	1.5-3.5
c. Comfort	20	1.0-2.5
d. De luxe	30	0.7-1.5

Beach facilities — Sanitary facilities in ratios of 5 water closets 2 lavatory basins and 4 showers for every 500 persons

Resort density	
a. In Spain, Greece, Bali, Honolulu	60-100 beds/hectare
b. Club Mediterranee Village	20 beds/hectare

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